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A Guide to the Literature of Physical Education, Including Certain Aspects of Health Education and Recreation*

By Alice Allene Sefton

INTEREST in physical education, health, and recreation has had an unprecedented growth in the past few years, if we are to judge by the vast amount of literature that has appeared. It becomes increasingly difficult to keep up-to-date unless the educator has a mastery of sources where all types of materials may be readily located.

This guide is intended to make the material already existing in the field more accessible to student, teacher, administrator, or anyone seeking information on any phase of physical education.

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* One of a series of guides to the professional literature of various phases of education, initiated by Carter Alexander, Library Professor, Teachers College, Columbia University, and worked out by students in his courses. Information about the guides already published, about those completed but not yet published, or about those still under way, may be obtained from Professor Alexander.

BIBLIOGRAPHIES

Best Brief Bibliography

Lies, Eugene T. *The New Leisure Challenges the Schools.* National Education Association of the United States, 1201 Sixteenth Street, Washington, D.C., 1933. 326 pages. Paper $1.50.

The Bibliographical Section under "Physical Education" lists twenty carefully selected references that cover the various aspects of the field briefly but adequately, and that, together with the Bibliography on Recreation, provide a nucleus for the physical education library of teacher or administrator.

Most Complete Bibliography

McCloy, C. H. "Bibliography of Health and Physical Education." Research Quarterly, Vol. III, No. 3 (October, 1932), pages 3–78.

A complete compilation for professional research. Not annotated. Contents arranged alphabetically, covering material to December 31, 1931. A revised Bibliography will be published in the Research Quarterly every five years which will include all the books published in the field of physical education and related activities.

Bibliographies Covering the Greatest Span of Years

Blancò y Sánchez, Rufino. *Bibliographiás general de la educacion fisica.* Hernando, Madrid, Spain, 1927. Vol. I, 1007 pages; Vol. II, 452 pages.

Not only is this general bibliography a scholarly work, but it is the only one of wide international interest. It lists over 18,000 annotated bibliographic references from Spain, France, Germany, England, and America, annotated in Spanish; other material is annotated in the language of the country where it is published. Unique material, good technical organization, and useful in research.

The method of arrangement is a little difficult, but the explanation that follows will greatly facilitate the location of material. The text of Volume I is divided into three parts: first, Index of Authors, with complete reference material (anonymous works also included); second and third parts, Supplement and Appendix. Volume II contains: (1) alphabetical index of materials—25,000 subject headings in various languages; (2) alphabetical index of places of imprint—the bibliography of each nation and each language in order; (3) chronological index, which organizes the dates of this bibliography by years, centuries, periods, epochs, and dates; (4) index of reviews (463 in all) of subject headings which refer to 1,370 articles and monographs about physical education; (5) index of indexes.

McCurdy, J. H. *Bibliography of Physical Training.* Physical Directors' Society of the Y.M.C.A. of North America, Springfield, Mass. Third Edition (Revised and Enlarged) 1905. 369 pages.

References from the beginning of physical training in the United States to 1905. Indexed Dewey decimal system and arranged alphabetically by

author and subject heading. Helpful in locating diversified material to form a background in past periods in America. Includes older references hard to find elsewhere.

Affleck, George B. *Bibliographies.* March, 1910, to date.

Cover a great span of years, more than any other current bibliographies. Not annotated. Published three times yearly, in varying months; may be located through the Yearly Index of the *American Physical Education Review* under Affleck, G. B., or bibliographies with titles, "Bibliography of Physical Training," or "Selected Bibliography of Physical Training," or "Selected Bibliography of Physical Training and Hygiene" (1910–1929). Magazine reorganized in 1929 and these bibliographies were continued in the RESEARCH QUARTERLY, appearing yearly in the December issue. The title, "Bibliography for 1933," appears in Vol. V, No. 4 (December, 1934), pages 127–150 of the RESEARCH QUARTERLY.

These bibliographies provide the best means of keeping up-to-date on books and periodicals published for the calendar year. Covers physical education and related fields, health, athletics, recreation, sciences, with each main heading subdivided. Also, under miscellaneous appear many articles that do not lend themselves to classification.

Bridges, Dwight T. *Bibliography of Physical Training.* Physical Directors' Society of the Y.M.C.A., Springfield, Mass., 1912. 172 pages.

This work supplements McCurdy and the later bibliographies of Affleck, and supplies in compact and concise form a source of easily found material.

COMPREHENSIVE BIBLIOGRAPHIES ON THE SEVERAL ASPECTS OF PHYSICAL EDUCATION

Athletics

Ryan, W. Carson, Jr. *The Literature of American School and College Athletics.* Carnegie Foundation for the Advancement of Teaching, 522 Fifth Avenue, New York, 1930, 305 pages.

A thorough compilation of significant speeches and writings in the field of athletics, including more than one thousand titles—books, proceedings, reports, educational journals, and magazine articles. There is a section on athletics for girls and women.

Dancing

Beaumont, Cyril W. *A Bibliography of Dancing.* The Dancing Times, 25 Wallington Street, London, 1929.

A useful reference to dancers, teachers of the dance, and workers in the several allied arts. Chapter headings are given, followed by brief but illuminating annotations on each book. Includes only the publications listed in the British Museum Library, some of which are American.

Equipment

Smith, Henry Lester, and Noffsinger, Ruby Forest. *Bibliography of School Buildings, Grounds and Equipment.* Bureau of Cooperative Re-

search, Indiana University, Bloomington, Indiana. January 1, 1933. 50 cents. Published as a Bulletin of the School of Education, Indiana University.

Part I covers the period to October, 1927; Part II is a continuation of this series, from October, 1927, to April, 1932. Part III to date. Indexes of interest to physical education teachers are under the headings of "The Athletic Field," "The Gymnasium, and Its Accessories," "The Playground," "Recreation," and "The Swimming Pool."

General Bibliography

Woodring, Maxie N., and Schwendener, Norma. *Enriched Teaching of Physical Education in the High School.* Bureau of Publications, Teachers College, Columbia University, New York, 1929. 143 pages.

A carefully selected and annotated source book for teachers of physical education, camp counselors, and recreation leaders especially. Particularly helpful in listing sources of free and low-cost materials.

Health Education

Phelan, Anette M. "A Bibliography of Early Contributions to the Literature of School Health Standards." Pp. 39–47, *A Study of School Health Standards,* George Banta Publishing Company, Menasha, Wisconsin, 1934. 249 pages.

One chapter of this book reviews the literature on school health, starting from the early nineteenth century. Emphasis is given school hygiene, growing conceptions of a comprehensive school health program, interpretive reports on investigations and practices in school hygiene in Europe, school surveys, legislation and state regulations on school health standards. The bibliography that results from this thorough investigation is highly selective and authoritative. Arranged in decades starting with 1860. References chronologically arranged.

Leisure Time

Fretwell, E. K. *Selected Bibliography on Leisure Time,* Teachers College, Columbia University, New York. 1935.

This bibliography of over 1,200 items goes back as far as 1839 and covers material up to the present time. Approaches the subject of leisure from the sociological, philosophical, and educational points of view rather than giving specific subject matter.

Life Saving

Annotated Bibliography of Life Saving. Donofiro, Henry. 1903–1930. Published 1933. 65 pages. New York..

Mimeographed on forms especially designed to reveal the nature of these kinds of data. Gives notes, illustrations, and special features.

Play and Recreation

Williams, Marguerite P. *Sources of Information on Play and Recreation.* Russell Sage Foundation, New York, 1927. 94 pages.

Comprehensive, well annotated, and indexed. Revised edition in preparation.

Sports and Outdoor Recreations

Ranck, Wilson M. "Guide to Sports and Outdoor Recreations." RESEARCH QUARTERLY, Vol. VI, No. 1 (March, 1935), p. 75–151; or H. W. Wilson Co., 950 University Avenue, New York, 1935. 151 pages. 75 cents.

This bibliography lists over five hundred books, upon more than fifty sports and recreations, written from 1918 to December 31, 1934. Part I is given over to major and minor sports generally played during school life; Part II, mostly outdoor pastimes and hobbies cultivated by the sportsman. Helpful annotations to all books.

Student Health

Pierce, Anna Eloise. *Catalogue of Student Health Literature.* National Association of Deans of Women, Washington, D.C., 1930. 192 pages. H. W. Wilson Company, New York.

Lists over a thousand carefully selected books, pamphlets, and periodicals relating to secondary school, college, and university student health. Among the eighteen different headings are mental hygiene, social ethics, school hygiene, personal hygiene, air, food, cleanliness of body, and first aid. Annotated.

Swimming

Swimming, Diving, and Water Sports. Compiled by Swimming Section, Southern District, American Physical Education Association, May, 1935. Chairman, Miss Frances Greenwood, Box 1511, University of Alabama, University, Alabama. 50 cents. 93 pages.

Booklet deals with swimming, diving, and water sports. Gives a bibliography, and guide to equipment and supplies.

CURRENT BIBLIOGRAPHIES, CATALOGS, LISTS, YEARLY SUMMARIES, AND SPECIAL BULLETIN SERVICES

Besides the bibliographies listed above (the yearly bibliographies of Affleck and the five-year plan bibliographies of McCloy) there are valuable services of various kinds that will help in keeping the teacher, administrator, or interested layman up to date in matters of physical education, health, and recreation.

Bibliographies

The American Public Health Association, 50 West 50th Street, New York City. $5.00. Monthly.

One important service offered by this Association to physical education teachers who want to keep up to date in their subject is the issuing of an annual bibliography and the publishing every May of a list of summer courses, under state headings, to be given all over the country in the various

summer sessions of colleges and universities. These bibliographies appear in the *American Journal of Public Health.*

Joint Committee on Health Problems of the National Education Association and the American Medical Association under Department of School Health and Physical Education of the National Education Association, 1201 Sixteenth St., N.W., Washington, D.C.

This group plans to continue the service of publishing carefully classified and annotated bibliographies, revised yearly; a service previously rendered by the American Child Health Association. The bibliographies are useful and practical. Various aspects of health are dealt with and materials are suggested to meet specific requests of administrator, supervisor, teacher, physician, and nurse. Single copies are free.

The Library Index. The National Health Library of the National Health Council, 50 West 50th Street, New York City. Established 1921. Weekly. $2.50.

These weekly unannotated bibliographies serve as an index to current periodical literature in the field of public health. The subject headings vary each week according to the type of material that is to be found, and the columns vary in length accordingly. The listings usually do not exceed four typewritten pages.

Health Education Material for Teachers. Compiled for the Department of School Health and Physical Education, National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. Revised Edition, 1933.

A bibliography listing pamphlets of special interest to teachers; under the headings of general health education, cleanliness, diet and nutrition, mental hygiene, physical condition of pupils, ears, eyes, teeth, etc., physical education activities, rest and sleep, safety and accident prevention, ventilation and lighting. The pamphlets are either free or inexpensive, and the addresses of the publishers from whom they may be obtained are given. The list guides the teacher to health material on practical, vital problems affecting herself, her pupils, and her school.

Catalogs

The American School and University. Annually. Vol. VIII, 1936. American School Publishing Corporation, 470 Fourth Avenue, New York City. $5.00 and Service.

A yearbook devoted to design, construction, equipment, utilization, and maintenance of educational buildings and grounds. Always contains helpful articles and bibliographies on buildings and equipment for physical education, playground, and recreation centers.

1000 and One: The Blue Book of Non-Theatrical Films. The Educational Screen, Inc., 64 East Lake Street, Chicago, Illinois. Established 1924. Yearly. Eleventh Edition 1935. Price 75 cents. To *Educational Screen* subscribers, 25 cents.

Most complete catalog of films for school use. Classified under athletics and sports, health and hygiene, anatomy, diseases, physiology, accident prevention, medicine and surgery, swimming, camping, and leisure-time activities. Gives helpful list of producers and distributors and necessary information for obtaining films.

Government Publications

Education. Superintendent of Documents, Washington, D.C. (24th Edition, 1934.)

A list of all educational materials published by the government, conveniently indexed. Prices given. Revised yearly.

Lists

Selected References in Education, 1933. Reprint from the *Elementary School Journal* and *School Review.* Department of Education, University of Chicago, Chicago, Illinois. Supplementary Educational Monographs, No. 41, 1934.

These bibliographies, published monthly in both magazines, are joined together in book form each year. The first volume covers magazine lists from April, 1932, to January, 1934. Physical education is among the twenty subject fields of education included (p. 39 and p. 181). Forty recognized specialists have selected and annotated these 1,100 references. This service is a continuance of the "Record of Current Educational Publications," formerly published by the United States Office of Education.

List of Books for College Libraries. Shaw, Charles B. The Carnegie Corporation, New York, 1931. 810 pages.

A helpful, selective list in physical education, health, and recreation. Under Physical Education and Hygiene approximately 125 references in hygiene appear, giving reference books, health and hygiene, gymnasium, play, and dancing. No annotations. For a minimum basic list for a college library in health and physical education as made out by the Advisory Group on College Libraries. One subsequent edition of this work will be issued after a suitable period.

A. G. Spalding and Bros. *Lists of Publications.* American Sports Publishing Company, 105 Nassau Street, New York City. Yearly.

List of official rulebooks for all sports—swimming, track, field, etc.; handbooks and guides for all phases of physical education activities, prepared by the Editorial Committee of the National Section on Women's Athletics of the American Physical Education Association.

Year's Summary in Health

American Annual Encyclopedia. Since 1919.

In the *American Annual Encyclopedia* under Public Health Service, a yearly summary is made of existing health conditions. Includes industrial hygiene, mental hygiene, child hygiene, prevention and spread of disease, scientific research in diseases of man, and special investigations. Reports and statistics are included.

Special Bulletin Services

The National Recreation Association, 315 Fourth Avenue, New York City, offers five distinct services which should be of help and interest to the teacher of physical education, and to the camp or recreation leader. These are:

1. *National Physical Education Service.* $1.00 a year. Monthly news letter. 10 issues.

The news letter deals with the various aspects of physical education, and contains useful information on timely problems, reports of committees, programs, monographs, bibliographies, convention summaries, and publicity material.

2. *Recreation Bulletin Service.* $2.50 a year.

Bi-weekly bulletins issued through the year. Present a variety of material for sports and recreation, such as games, arts and crafts, holiday suggestions, and teaching hints. Personal attention is given to individual problems on request, and bibliographies are furnished.

3. *Play in Institution Service.* $1.00 a year. Monthly bulletins. 10 issues.

A special service providing material needed in institutional work of any kind for the mentally and physically handicapped, as well as teaching material usable in institutions for normal children of different age groups.

4. *The Dramatic Service.* Free of charge.

This service will be glad to help anyone interested, through consultation or correspondence, to select suitable plays for special groups, suggest sources of information in the technique of play production, and, if facilities are limited, recommend inexpensive books on lighting and scenery.

5. *Rural Worker's Bulletin Service.* $1.50. Monthly.

The peculiar needs of each community are met by furnishing materials appropriate to staff, equipment, and type of program found in rural schools.

ABSTRACTS

Biological Abstracts, 1926 to date.

A comprehensive abstracting and indexing journal of the world's literature in theoretical and applied biology, University of Pennsylvania, Philadelphia, Pennsylvania. Signed abstracts under general headings with a subject index for each number and an author and subject index for each volume.

Child Development Abstracts and Bibliography, 1927 to date.

Abstracts on such topics as activity, adolescent problems, growth and development, body structure, character building, diet needs, emotional reactions, muscular development, motor skill, play, leisure-time activities, and weight indices.

Digest of Physical Education, Health, and Recreation, 5315 Drexel Avenue, Chicago, Illinois. October, 1934. Monthly.

Approximately twenty-five carefully selected magazine articles reprinted. Articles in their digest form, contain only the essence of the originals.

Journal of Home Economics, 101 East 20th Street, Baltimore, Maryland.

Abstracts made from books and scientific magazines in related fields. Present practical information on the latest developments in the field of growth as it is affected by nutrition.

Loyola Educational Digest. Loyola Educational Digest, Chicago, Illinois.

Its service includes a monthly printed bulletin entitled "Current Literature and Book Reviews." Digests of educational literature printed on cards. All are classified according to the Dewey decimal classification scheme. The work is carefully done. Its use is facilitated by multigraphed sheets of alphabetically arranged subjects with the corresponding decimal classification numbers.

BIOGRAPHY

Leonard, Fred E. *Pioneers of Modern Physical Training.* Second Edition, Revised and Enlarged. Association Press, 347 Madison Avenue, New York, N.Y. 1922.

The first edition of this book was composed of reprints of a series of biographical sketches which appeared in *Physical Training* between January, 1907, and June, 1910. In its present form it includes biographical sketches of leaders in physical education. The book now contains about thirty biographies. It serves as an introduction to the history of physical education, and commends itself for use in normal and special schools, and leaders' classes.

BOOK REVIEWS

Locating Book Reviews

The Education Index.

This facilitates locating book reviews that have appeared in educational magazines. Under "Book Reviews," any book review can be easily traced if the name of the author is known.

The Book Review Digest.

This presents a concise, critical abstract from each magazine where the book has had a review. Exact reference to the review is given, and the length is indicated; also a plus or minus sign to show the general trend of the reviewer's estimate. A limited number are in the field of physical education, but those listed may be found under author's name and also under "Physical Education."

Book List Magazine.

Under the topic of "Health," indices to the best reviews are to be found in the *Book List* magazine, which gets its lists from the American Library Association and from the *Book Review Digest*. References are arranged alphabetically by the authors of the books reviewed, with a subject and title index.

The New York Times Index (instituted in 1913).

This index lists only books which have been reviewed in this paper. Books of considerable importance may be found under author or title of book, but always may be found under the heading "Book Reviews." A good source for reviews of popular books on sports, the activities in physical education, science, or recreations and pastimes.

Book Reviews in Periodicals

RESEARCH QUARTERLY.

The most selective and complete book reviews in the field of physical education are to be found in the RESEARCH QUARTERLY.

Journal of Health and Physical Education.

A column of book notices is carried each month in the *Journal of Health and Physical Education.*

Public Health Reviews, Division of Hygiene and Public Health, University of Michigan, Ann Arbor, Michigan.

The University of Michigan established in 1930 a free monthly service for the purpose of furnishing summaries of current books, selected articles, and pamphlet material. These book reviews are thorough and scholarly and all are signed by health specialists. Classified under convenient headings such as administration, biology, child health, medicine, mental hygiene, nutrition, personal hygiene, sex hygiene, and miscellany.

American Journal of Public Health.

Important books and articles on health are reviewed in the *American Journal of Public Health* under "A Selected Public Health Bibliography—Annotated." The May issue includes a review of important books of the year.

COURSES OF STUDY

Education Index.

Courses of study may be located through the *Education Index*, under subject headings or under schools and colleges.

Curriculum Construction Laboratory. Room 521, Russell Hall, Teachers College, Columbia University.

This laboratory furnishes mimeographed and printed material dealing with criteria for judging the curriculum; units of instruction in health and physical education; lists of outstanding courses of study (revised yearly). Helpful bibliographies on various phases of curriculum construction are obtainable.

DICTIONARIES AND ENCYCLOPEDIAS

The Book of Days: A Miscellany. W. and R. Chambers, Ltd., Edinburgh, Scotland. J. B. Lippincott Company, Philadelphia, Pennsylvania. 2 vol., 1625 pages.

This book gives phenomena connected with seasonal changes, popular festivals and pageants, notable events, biographies, and anecdotes connected with days of the year. It includes entertaining articles tending to illustrate the progress of civilization, manners, literature, and ideas, all of which are needed by instructors to furnish background in planning and directing extracurricular activities in the school, college, or recreation center.

Planche, James Robinson. *Cyclopaedia of Costume*, or *Dictionary of Dress.* Chatto and Windsor, Piccadilly, London. 2 vol., 960 pages. 1876–1879.

This book gives a chronological history of the costumes of the principal countries of Europe, from the commencement of the Christian era to the accession of George the Third, including notices of contemporary fashions on the Continent.

This is the only English dictionary on this particular subject and is therefore very useful. The large illustrated works, however, are frequently more useful for reference.

The Encyclopaedia of Sport, edited by the Earl of Suffolk and Berkshire, Hedley Peek, and F. G. Afolo. G. P. Putnam's Sons, the Knickerbocker Press, New York and London. Copyrighted by G. P. Putnam's Sons in 1897. 2 vol., 1245 pages. 1899.

The scope of this work is very wide and includes many articles on subjects which are not definitely in the category of sport, but are certainly its corollaries, such as first aid, taxidermy, and veterinary work. No sacrifice of accuracy or technical detail has been made. Experts, both men and women, have helped in supplying information in the various fields.

This is a very complete and important work of special interest to lovers of sport, including full information on both indoor and outdoor activities, such as water sports, game hunting, camping, tennis, etc.

A French-English Dictionary of Technical Terms Used in Classical Ballet, compiled by Cyril W. Beaumont. London, 1931.

Helpful in tracing early forms and variations of the dance.

Grove's Dictionary of Music and Musicians, Third Edition. The Macmillan Company, New York, N.Y. 1927–1928.

This work is the standard encyclopedia in English, covering the whole field of music since 1450. It includes articles on musical history, theory and practice, terms, instruments, biographies of musicians, bibliographies, and articles on individual compositions, songs, etc. It is alphabetically arranged (not classified).

A Miscellany for Dancers, compiled and translated by Cyril W. Beaumont. London. 196 pages. 1934.

This book gives glimpses of well-known dancers from the eighteenth century to the present day. It presents a composite picture of the life of the dancer from the period of training to the farewell performance. Many interesting anecdotes are included.

Stedman, Thomas Lathrop. *A Practical Medical Dictionary*, Revised. William Wood and Company, 1178 pages. 1926.

A comprehensive illustrated dictionary of words used in medicine, with their derivation and pronunciation. It is of interest to teachers of physical education in that it includes terms relating to all phases of health.

Traditional Games of England, Scotland, and Ireland, a dictionary of British folk-lore, collected and annotated by Alice Berthe Gomme. David Nutt, 27–71 Strand, London. 2 vol., 959 pages.

This book shows the evolution of tunes, singing games, and rhymes and describes various methods of playing them at different periods and in different parts of the kingdom. A great many children's games are included and all invented games of skill excluded. It contains both indoor and outdoor games played by girls and by boys and tells origin and development, together with a comparison with the games of children of foreign countries.

DIRECTORIES

Directories of Associations

Educational Directory, Part IV, Educational Associations, Boards, and Foundations. Bulletin 1935, No. 1, 5 cents. U. S. Office of Education, Washington, D. C.

American associations (educational, civic, and learned), educational foundations and boards, Jewish educational organizations, church educational boards, international educational associations and foundations, national congress of parents and teachers, executive officers of state library commissions, state library associations, and educational directories.

Social Work Yearbooks. Editor, Fred S. Hall. Russell Sage Foundation, New York, 1935. Third Issue.

Part I: Topical articles, arranged alphabetically, and cross-referenced. References to literature follow each article. Lists such subjects as cancer, crippled children, education and social work, family budgets, health centers, health demonstrations, health education for children and adults, Negroes, nutrition work, placement of the handicapped, recreation, safety, and scouting and related organizations.

Part II: Directories of agencies national and state, private and public.

Directories of Equipment for Schools

School Supply and Equipment. School Management, Inc., 9 East 40th Street, New York City, 1935. 25 cents.

Issued annually since 1934, this is the only directory of its kind in the school field. It lists the names of several thousand firms which manufacture every kind of school equipment and supplies. The nearly two hundred headings, with the firms listed under them, are arranged alphabetically. Of spe-

cial interest to the physical education teacher will be the sections devoted to athletic and gymnasium equipment.

Sweet's Architectural Catalogue.

Lists all kinds of equipment made by all manufacturers.

Directories of Doctoral Dissertation

Derring, Clara Esther. *Lists and Abstracts of Masters' Theses and Doctors' Dissertations in Education.* Reprinted from the *Teachers College Record,* Vol. XXXIV, No. 6 (March, 1933).

This bibliography states where lists and abstracts of theses and dissertations in education of sixty-three colleges and universities in the United States may be obtained. There is also a heading, "General Lists," under which appear four other sources.

Directories of Foundations

No. 16, Department of the Interior, Bureau of Education Bulletin, 1926.

American Foundations for Social Welfare. Russell Sage Foundation library, Russell Sage Foundation, New York City. Revised, 1930. 50 cents.

Lists and briefly describes American foundations, giving names and addresses of officers and purpose of each foundation. See index under health, recreation, and research.

Givers' Guide to National Philanthropies. Bulletin No. 17, January, 1932. National Information Bureau, 215 Fourth Avenue, New York City.

Twentieth Century Fund, Inc., 5 Park Square, Boston, Mass.

Gives amount of money expended on projects for public health and social welfare.

Directories of Government Publications

Schmeckebier, Lawrence E. *Statistical Work of the National Government.* Johns Hopkins University, Baltimore, Maryland. 1925.

A complete directory, which includes the related health and physical education work of the various states and departments of government.

Boyd, Anne Morris. *United States Government Publications.* H. W. Wilson Company, 1931.

A comprehensive, up-to-date reference book with details of *all* United States Government publications in regard to character, content, and titles, from their beginning to the present date. A complete reference.

Witmer, Eleanor M., and Miller, Margaret C. *United States Office of Education Serial Publications.* Reprinted from the *Teachers College Record,* Vol. XXXIV, No. 4, January, 1933.

It is a check list, with descriptive notes.

Directory of Indexes

Guides to Educational Literature in Periodicals: Indexes, Abstracts, Bibliographies. Witmer, Eleanor M., and Miller, Margaret C. Reprinted from the *Teachers College Record,* Vol. XXXIV, No. 8 (May, 1932). Obtainable Teachers College Library. 10 cents.

Lists eight indexes which will be a guide to those referring to educational literature in periodicals; and in addition, the names of nine publications giving abstracts and digests of important periodical articles in selected fields. Five bibliographies giving lists of educational periodicals most generally useful to education are included. There are two tables, one showing the years covered by various indexes in this field and the other showing the chronological order in which indexes should be consulted for certain types of information.

Directories of Names

Who's Who in America, Who's Who in American Education, and *Leaders in Education* include the most prominent biographies of educators.

America's Young Men and *American Women.* Two new annuals of current biography. Only men born since January, 1894, are included. Eleven per cent duplicated in *Who's Who.*

Periodical and Newspaper Directories

Redman, Aletha B. "A Classified List of Current Periodicals in the Fields of Athletics, Health, Physical Education, and Sports Published in the United States and Canada," Research Quarterly, Vol. VI, No. 1 (March, 1935), pp. 63–74.

The only available compilation of periodicals directly relating to physical education. Twenty-five classifications. No annotations. Date when magazine was established, necessary information when ordering, and the number of issues, all stated.

Ayer and Sons American Newspaper Annual and Directory, Philadelphia, Pennsylvania.

The most frequently used general list of American newspapers and periodicals. The main list is arranged by state and city, making the consultation of the alphabetical index necessary if the place of publication is not known.

Selected List of Educational Periodicals. Monroe, Walter S. Hamilton, and Smith.

An aid to the lay person who wants to know more about the recognized magazines in education; annotations explain the nature, worth, and comparative usefulness of each magazine.

Ulrich, Carolyn F. *Periodical Directory.*

A valuable and easy reference to physical education, health, and recreation magazines. Under "Athletics" alone fifty references to specialized periodicals are given.

SCHOOL AND CAMP DIRECTORIES

American Universities and Colleges. The American Council on Education. Charles Scribner's Sons, New York, 1928.

In Part II each of the universities and colleges on the accredited list in 1926 has prepared an exhibit of its general resources; this is useful in making significant facts available, and it is a recognized source, giving a full description of the institution, with information on its historical background and the statistics on its growth and development.

A Handbook of Summer Camps. Porter Sargent, Editor. A bibliography of summer camps. Porter Sargent, 11 Beacon Street, Boston, Mass. Eighth Edition, 1933–1934. 780 pages.

An annual survey (since 1924) of summer camps, and all matters pertaining thereto, with critical descriptions. Chronologically arranged. Includes origin, development, present status, and practices of the summer camp movement. Useful references for finding all types of camps for the various age groups and for different interests. A guide to parents, or to those who wish to know how to choose summer camps. List of camp outfitters, telling where to obtain camping materials, tenting, athletic goods, and the like.

Patterson, Homer S. *Patterson's American Educational Directory.* American Education Company, Chicago, Illinois. Issued annually. Volume 22, 1934. Pp. 1056.

Gives a complete list of educators in all types of schools. Under the classification, College and School Directory, may be found schools of physical education listed according to states, with the name of the college, title of the department, and the name and title of the department head.

It also gives, under the classification, Associations and Societies, various officers of education in the different associations and societies. There is a classified index on equipment under such titles as Playground Apparatus, Gymnasium Apparel, and Health Material.

This is by far the most complete and useful directory in locating schools, important officials, firms, and associations of interest to school men. Classified by states and types of schools so they may be located from practically any approach.

EDITORIAL COMMENT

The *Journal of Health and Physical Education* usually devotes two pages to editorial comment upon trends in physical education and allied fields, new movements, particular needs, or innovations. The *American Journal of Public Health* has an "Editorial Section" dealing with present-day issues in public health, with specific references sometimes cited. *Hygeia,* besides an editorial article, features a section, "Questions and Answers by the Editor." *Recreation* has a "Foreword" of a philosophical and inspirational nature signed by the editor.

Other praiseworthy editorial comment may be found in *Mind and Body* and the *Athletic Journal.*

FOUNDATIONS

The following foundations have contributed largely to health and physical education, making large funds available for studies, surveys, and fellowships in specialized fields, and making their research available in publications and reports. The fields of athletics, dancing, playgrounds, and recreation are included in this list. These foundations have made surveys in many cities, given financial aid for the upkeep of certain worthy national organizations, made health centers and clinics possible, and conducted investigations in various fields of endeavor.

Behavior Research Fund, 907 Lincoln Street, Chicago, Illinois.
Brush Foundation, 2109 Adelbert Road, Cleveland, Ohio.
Carnegie Corporation, 522 Fifth Avenue, New York, N.Y.
Commonwealth Fund, 41 East 57th Street, New York, N.Y.
Guggenheim Memorial Foundation, 140 Nassau Street, New York, N.Y.
Harmon Foundation, 140 Nassau Street, New York, N.Y.
Heckscher Foundation for Children, 1 East 104th Street, New York, N.Y.
W. K. Kellogg Foundation, Battle Creek, Michigan.
Josiah Macy Junior Foundation, 565 Park Avenue, New York, N.Y.
Milbank Memorial Fund, 40 Wall Street, New York, N.Y.
Payne Fund, Inc., 1 Madison Avenue, New York, N.Y.
Phelps Stokes Fund, 101 Park Avenue, New York, N.Y.
Rockefeller Foundation, 49 West 49th Street, New York, N.Y.
Julius Rosenwald Fund, 4901 Ellis Avenue, Chicago, Illinois.
Russell Sage Foundation, 130 East 22nd Street, New York, N.Y.

GOVERNMENT AGENCIES

The chief official government source for health and physical education is the *Consultant in Hygiene,* Office of Education, U.S. Department of the Interior, Washington, D.C.

The Children's Bureau, Department of Labor, publishes charts and pamphlets on posture and nutrition.

HISTORY

Physical Education

Encyclopedia Americana, Vol. 22—Under Physical Training, 1932, pp. 31–35.

This is the briefest history of physical education. It deals with the early history of physical education and the introduction of the different "systems" into the United States. Health agencies; extent, organizations, and purpose of each described. Article signed by Jessie H. Bancroft.

Leonard, F. E., and McKenzie, R. T. *History of Physical Education.* Lea and Febiger, 600 South Washington Square, Philadelphia, Pa., 1927, 371 pp.

This is the most comprehensive account. A detailed history of the development of physical education throughout Europe and the United States,

with emphasis upon personalities who have been responsible for great movements that have brought about the present status of thought and practice in physical education.

Rice, Emmett A. *A Brief History of Physical Education* (Revised and enlarged 1932) 276 p. New York: A. S. Barnes & Co.

Includes ancient, primitive, and oriental nations and develops the history of physical education in regard to its significance in education throughout the ages and its power in socializing mankind.

Dancing

Vuillier, Gaston. *A History of Dancing.* D. Appleton & Co., New York, 1898. 594 pp.

This tome takes up the development of dancing from earliest times to the end of the nineteenth century. Careful descriptions of dances typical of each country in the world are given; also the history of different dance forms. Over four hundred illustrations from works of art in sculpture, etchings, prints, paintings, and ceramics.

Women's Colleges

Ainsworth, Dorothy Sears. *A History of Physical Education in Colleges for Women.* A. S. Barnes and Company, 1930, 116 pp.

Comparing the *raison d'être*, the early concepts, the program of activities, equipment, costumes, staff, athletic associations, in the twelve oldest women's colleges in the United States, this book gives a view of the progress which has taken place in education in general and physical education in particular in the last hundred years. Such a history gives added significance to the present status of physical education for women.

HEALTH EDUCATION

Encyclopedia Americana, Vol. 14, Heading "Health Education," pages 27–32, 1932.

This is the briefest history of health education. Traces history from time health education was introduced into schools in Europe and United States. Mentions the limitations in programs at various stages. Shows progress made through school laws, the establishment of standards for school buildings and processes, and the inclusion of health in the curriculum as a school policy. Article signed by Thomas E. Finegan.

Phases of Health

Health is so comprehensive a subject that it is impossible to gain a complete picture of the field from any single source; and of many phases of health, histories are not available.

Milestones of Public Health in America, American Public Health Association, 50 West 50th Street, New York, 1926.

This is a clear chronological guide in public health. An eight-page mimeographed leaflet divided into nine sections, namely, organization, vital statistics, communicable disease control, tuberculosis, prenatal, infant, and child

hygiene, sanitation, laboratory, food and drugs, and public health nursing. The important dates and places in the progress of public health in America are given.

Winslow, C.-E. A. *The Evolution and Significance of the Modern Public Health Campaign.* Yale University Press, New Haven, Connecticut, 1923. 65 pages.

This shows a panoramic view of the whole world movement in public health.

Ravenal, Mázyck P., M.D. *Fifty Years Before 1925 or a Half-Century of Public Health 1871–1921.* American Public Health Association, 50 West 50th Street, New York, 1921.

This is an interesting book to the physical education teacher. Discussions of bacteriology and its contribution to public health, American mortality progress, quarantine and the control of disease, water purification, sewerage and solid refuse removal, stream pollution, food conservation and control relative to milk, housing, industrial hygiene, and history of public nursing are given in this volume.

Recent Social Trends, Report of the President's Research Committee on Social Trends, McGraw-Hill Book Company, New York, 1933. Vol. I and II. 1508 pages, covers period from 1900 to 1933.

A Half Century of Public Health, together with *Recent Social Trends,* gives a detailed picture of the various aspects of public health.

Medicine

Osler, Sir William. *The Evolution of Modern Medicine.* Oxford University Press, 1923. 233 pages.

This book, one of the briefer histories of public health, presents in readable form the history of medicine from the time of the Greeks through the Middle Ages to the preventive medicine of modern times. Freely illustrated.

Garrison, Fielding H. *Introduction to the History of Medicine; with Medical Chronology, Suggestions for Study, and Bibliographical Data.* Fourth Edition, Revised and enlarged. W. B. Saunders and Company, 1929. 996 pages.

This is the most complete history of medicine.

RECREATION

Mitchell, Elmer D., and Mason, Bernard S. *The Theory of Play.* A. S. Barnes and Company, New York, 1934, Chapter II, "The Modern Play Movement," pages 24–48.

A brief history of the recreation movement, especially in Europe and the United States, is given in this book. The reader gains an understanding of the significance of the modern play movement by surveying the respective backgrounds, developments, and influences which have prevailed in

Europe and the United States. The social and physical environment of each nation is dealt with individually.

INDEXES

General Indexes

Voegelein, L. Belle. *List of Educational Subject Headings.* Bureau of Educational Research, Ohio State University, 1928.

Only subject headings appear in this index, with cross references. For example, under the main heading, Health, may be found Medicine, Prevention, and the like.

Education Index, H. W. Wilson Company, New York, N.Y.

Indexes by author and subject approximately 120 educational periodicals of the United States and Canada. One French, one German, four English, and several international periodicals are also included. Aims to cover educational literature generally rather than periodical literature alone; many books, pamphets, and monographs are included.

Preceding the main index in each issue are valuable check lists of courses of study; federal, state, and city documents; and the list of educational institutions, associations, and foundations.

The most generally useful and comprehensive of all indexes for the field of education. Useful in finding new courses of study in special fields or in colleges and schools, list of dates and meeting places for approaching conferences of all kinds. Indexes articles from *Journal of Health and Physical Education,* Research Quarterly, *Mind and Body,* and such.

International Index to Periodicals, vols. 1–19, H. W. Wilson Company, New York, N.Y.

Author and subject index of 250 selected periodicals devoted to pure science and the humanities. More than half of the periodicals listed are published outside the United States. Previous to 1929 this publication indexed twenty-two of the leading educational periodicals. Of this number five represented important German educational psychology periodicals. Thus, for the period of 1927–1928 this is the most important source of educational periodical bibliography.

Loyola Educational Index, Loyola University Press, Chicago, Illinois. 1928.

Bimonthly, five numbers cumulated December, 1928. This cumulation supplanted the February to October issues and concluded the publication by the *Index.* It was superseded after 1928 by the *Education Index.* This index must not be confused with the *Loyola Digest,* which is concerned primarily with abstracting educational and psychological articles found in sixteen educational periodicals on the theory and practice of teaching.

Poole's Index to Periodical Literature, 1802–1881. Houghton Mifflin Company, Boston, Massachusetts. Supplements, January 1, 1882, to January 1, 1907. Five volumes.

The first of the important indexes to periodical literature and still the

great reference source for English and American magazines of the nineteenth century.

Indexes by subject and title only. No other entries or dates are given. Book reviews are entered under title unless the subjects or the reviews are striking, when they are entered under subject.

LIST OF SUBJECT HEADINGS UNDER WHICH TO FIND MATERIAL ON PHYSICAL EDUCATION IN INDEXES

*SUGGESTED SUBJECT HEADINGS	INDEXES			Library Card Catalogue
	Readers Guide	Education Index	International Index	
Activity	—	x	—	—
Adolescence	x	x	x	—
Amusements	x	—	x	x
Anthropometry	x	x	x	x
**Athletics	x	x	x	x
Ballet	x	—	x	—
Calisthenics	—	x	—	—
Camping	x	x	x	x
Children's Amusements	x	—	x	—
Contests	—	x	—	—
Dancing	x	x	x	x
Exercise	x	x	x	x
Extra-Curricular Activities.	x	x	x	x
Games	x	x	x	x
Growth (physical)	—	x	x	x
Gymnasiums	x	x	—	x
Gymnastics	x	x	x	x
Health Education	x	x	x	x
Hobbies	x	x	x	—
Hygiene	x	x	x	x
Leisure	x	x	x	x
Pageants	x	x	—	x
Physical Ability Tests	x	x	x	—
Physical Education	x	x	x	x
Play	x	x	x	x
Play Days	x	x	—	—
Playground	x	x	x	x
Posture	x	x	x	x
Recreation	x	x	x	—
Remedial Teaching	x	x	—	—
School Children	x	x	x	x
School Hygiene	x	x	x	x
Singing Games	x	x	x	—
**Sports	x	x	x	x
Swimming	x	x	x	x

* In most cases where a subject heading could be looked up under the name itself, headings are not given, such as Swedish gymnastics, therapeutics, equipment, and festivals.

** *Sports* and *Athletics* have more than fifty headings referring to cross references, such as basketball, tennis, hockey, fencing, Olympic Games, golf, track, winter sports, skating, running, school and college athletics.

Reader's Guide to Periodical Literature, H. W. Wilson Company, New York, N.Y. Vols. 1–32. Monthly.

The most important and the most generally used of the current indexes to general periodical literature. Indexes by author and subject 120 general periodicals. Starting as an index of fifteen magazines in demand in small libraries, the permanent volumes of the *Reader's Guide* now contain nearly one million entries. Indexes articles from *Hygeia, Recreation, American Journal of Public Health, School Life*, and similar publications.

Specialized Indexes

The Dramatic Index, originated in 1909.

Indexes dramatic material in the English and American periodical press. It is a sort of *Who's Who* of the dancing world, indexing portraits of, and articles on, dancers and dancing. The whole periodical field is covered thoroughly, with some two hundred titles in all, including *Vanity Fair*, the *Theater Arts Monthly*, *Vogue*, the *Literary Digest*, the *Musical Courier*, the *New Music Review*, *Harper's Bazaar*, and the *Drama*.

All references are exact as to title, volume, date, and pages.

The Dramatic Index is issued separately and also as Part II of the *Annual Magazine Index*, 1909–1922; and it contains the cumulations of the *Dramatic Index* published in the quarterly numbers of the *Bulletin of Bibliography*.

Part II is most important for the teacher. It offers an excellent guide to the field of dancing, and may well be used in connection with physical education.

Index to Parties, compiled by Agnes K. Silk and Clara E. Fanning. F. W. Faxon Company, Boston, Mass. 1930.

A ready guide with composite information on entertaining, from 15 books and 153 issues of periodicals. A large number of subject headings make it easy to locate material listed under holidays, annual events, and birthdays, and also as to function, that is, for gymnasium, beach, or garden. References for virtually every sort of party. Especially helpful to the recreation, club, or party leader. Includes only books published since 1925. Dennison party books are not listed.

New York Times Index, New York Times, New York, N.Y.

Indexes news stories which have appeared in the *New York Times*. Each volume consists of four quarterly parts. Plentiful cross references to names and related subjects.

Quarterly Cumulative Index Medicus, American Medical Association, 535 Dearborn Street, Chicago, Illinois.

Issued in April, July, October, and January, with July and January numbers cumulative, two volumes annually. Volumes 31–32 for 1931. A cumulative index to current medical literature, covering more than 1,400 periodicals by author and title of articles. Entirely scientific.

United States Surgeon-General's Office Index Catalogue of the Library, Authors, and Subjects. Government Printing Office, Washington,

D.C. First Series: 1880–1895, $5.00; Second series: 1896–1915, $5.00; Third series: 1918–1928, $2.00.

A dictionary catalogue, including not only books and pamphlets, but also a large number of references to periodicals and analytics. The Surgeon-General's Library is one of the largest medical libraries in the world, and this monumental catalogue is a very important bibliography on all aspects of the subject. Especially useful for purposes of medical biography, as it indexes a large number of biographical and obituary articles.

In the first and second series the subject cataloguing is full, but in the third series, beginning with Volume I, full cataloguing is given for only material published before 1926. For material after 1926 it gives authors' cataloguing for books and pamphlets, and omits the subject entries for these and all entries for periodical articles, since this omitted material is covered fully in the *Quarterly Cumulative Index Medicus*, 1926.

LEGAL ASPECTS

State-Wide Trends in School Hygiene and Physical Education as Indicated by Laws, Regulations and Courses of Study. James Frederick Rogers. U.S. Office of Education, Department of the Interior, Washington, D.C. Circular No. 7, 1930, 12 pages. Pamphlet No. 5, 1934, 15 pages (Revised).

Data given regarding ventilation laws, medical inspection, physical education, and health education; with statistical summaries of state legislation.

LISTS OF NAMES

The Educational Directory, Bulletin No. 1, 1935, published annually by the Office of Education, the United States Department of the Interior, Washington, D.C.

The official source of names of principal county and city school officers. This list aids in locating state school officers in health and physical education, wherever these officers hold such titles.

The American Public Health Association, 50 West 50th Street, New York, N.Y., also publishes a list of names in its Yearbook, issued annually as Part II of the May number of the *American Public Health Association Journal.*

Journal of Health and Physical Education.

In 1931 the American Physical Education Association began the custom of honoring those who had made great contributions to health and physical education. The Fellowship Awards for 1931 were published by the *Journal of Health and Physical Education* in June, 1931; list not published for 1932; cumulative list for 1933 published December, 1933; Recipients of Honor Awards for 1934 were published in April, 1934, and those for 1935 in the November, 1935, issue. The list will appear annually in the future sometime after the spring convention, and it is a good means of learning who is who in physical education.

Index Catalogue of the Library of the Surgeon General's Office, Washington, D.C.

This is another reliable source. The first, second, and third series published to date contain brief write-ups of scientific men, mostly medical doctors. They also give a list of publications on file in this library.

Dramatic Index.

Names of dancers will be found in the *Dramatic Index* under the headings, "Dancing" and "Dancers."

Who's Who in American Education.

For information on a particular person in the educational field *Who's Who in American Education* is a reliable source. In general, the name and write-up may be found in the *Who's Who* of the country or particular section. *America's Young Men* and *American Women* are annuals of current bibliography inaugurated in 1934.

NEWS NOTES

Approximately one-fifth of the space in the *Journal of Health and Physical Education* is given over to news items under the regular headings "It May Interest You to Know," and "Around the Country with J. E. Rogers" by the Chairman of the Physical Education Field Service; and District Association News—Central, Eastern, Mid-West, Northwest, Southwest, and Southern. There are occasional columns giving news from various "Sections" of the American Physical Education Association. Subscribers to the *Physical Education Service* are kept informed upon recent happenings and current new practices in the field. *Mind and Body* features "Health Education Notes" and a section on "News, Notes, and Comments" that keep the reader up-to-date. For health news consult *The Journal of Public Health* under "Education and Publicity" and "News from the Field." In *Recreation,* outstanding occurrences are given under "The World at Play."

PERIODICALS

Physical Education

Official

Journal of Health and Physical Education, American Physical Education Association, Ann Arbor, Michigan. Established 1896 as the *American Physical Education Review* and changed to present name January, 1930. 10 months. $2.00 per year with active membership.

The *Journal* and its complement, the Research Quarterly, are the two official magazines in the field of health and physical education. Both periodicals are indispensable to teacher, administrator, student, or professional person who wishes to keep informed upon every aspect of the field. The articles cover administrative problems, principles, methods, teaching materials and

techniques, activity programs, theoretical and practical phases, history, philosophy, and progressive movements in this country and throughout the world. The articles are written by outstanding educational leaders. Book reviews, news notes, practical hints, and district news are regular monthly features. Convention summaries and roll of honor awards appear yearly.

RESEARCH QUARTERLY of the American Physical Education Association, Ann Arbor, Michigan. Published in March, May, October, and December. Vol. I, No. 1, March, 1930.

Articles based on research studies in the fields of athletics, physiology, administration, and character education comprise the greater part of the contents. Complete review of new physical education books a regular feature. The frequent supplements are sponsored by graduate departments of physical education in colleges and universities.

Unofficial of General Interest

The Digest of Physical Education, Health, and Recreation, 5315 Drexel Ave., Chicago, Ill. October, 1934. Vol. I. $1.00 per year. 10 months.

Under the editorship of C. D. Giauque of George Williams College and an advisory board, this pocket-size magazine reprints in condensed form approximately twenty-five carefully selected magazine articles. The magazine is especially helpful in that it makes an effort to bring to the educator the essence of articles appearing in other authoritative periodicals that might otherwise be overlooked. Articles are selected on the basis of interest, and the topics are widely diversified.

Journal of Physical Education, Physical Directors' Society of the Young Men's Christian Association, 347 Madison Avenue, New York, N.Y. Established in 1901. Published September to June. $3.00 yearly.

Especially for the Young Men's Christian Association. Contains practical suggestions on the subject of games and other activities. Useful to directors of recreation groups.

Mind and Body, Mind and Body Publishing Company, New Ulm, Minnesota. $2.00 yearly. Monthly, but two monthly issues frequently combined.

The magazine was originally founded by leaders in the formal school of gymnastics. It supplements the official publication in the field as a professional magazine in that it has the same broad scope of interest. Controversial views are presented, making the reader aware of vital problems in the field. The magazine has high standards of all-round development. It includes practical lesson material for classroom use, statistics, news notes, important dates, foreign notes, convention write-ups, radio programs, editorial comments, digests of important research developments, and up-to-date scientific information on health and physical education.

Unofficial of Specialized Interest

The American City, The American City Magazine Corporation, 470

Fourth Avenue, New York, N.Y. Established in 1909. Twelve issues. $2.00 yearly. (Indexed in *Reader's Guide*).

This magazine aims toward the betterment of school and community conditions. It is useful especially to the administrator who is interested in buildings and grounds.

Each issue contains a practical article on school problems, such as bathing, sanitation, lighting of play areas, servicing of school grounds, and the building of swimming pools and other equipment.

The magazine sponsors a national health conservation contest annually. A comprehensive list of conventions allied to public health appears in each issue. The book reviews are on the subject of public health.

An additional service is maintained for subscribers who desire information on specific problems of building and equipment.

The Athletic Journal, Athletic Journal Publishing Company, 6858 Glenwood Avenue, Chicago, Illinois. Established in 1920. $1.50 a year. Ten issues, September to June.

A magazine primarily for coaches in schools and colleges, in that it mainly features detailed articles on fine points of coaching of major sports; profusely illustrated with diagrams of team plays and action photographs. It is also helpful in minor sports and in the development of fundamental skills. New rules in sports are clearly set forth. A section is devoted to athletic injuries and treatments. Timely editorial comments are included.

Beach and Pool, 404 Fourth Avenue, New York, N.Y. Established in 1926. $2.00 a year. Twelve months.

A monthly publication devoted to the development of the nation's pools and beaches. Presents general teaching methods, practical suggestions, and advanced coaching hints by the world's leading instructors in swimming and diving. Also includes courses of study. Important analyses and statistics on the use of municipal pools are featured.

There are also articles on the construction of pools which tell where such materials and equipment may be purchased. Regular features of the magazine include "Did You Know?" a page of swimming oddities; notes on the International Swimming Clinic, and letters to the editor, which give insight into the plans, activities, and problems of others in the field.

Camping Magazine, Official Journal of the American Camping Association, Inc., Lane Hall, Ann Arbor, Michigan. Established in 1926. $2.00. October to June.

This magazine will be found helpful in the planning and managing of camps. There are news notes, and the publication presents a varied camp program, offering vast resources for everyone. It features three departments, entitled "Along the Trail of New Books," "Seen and Heard," and "Along Camping's Far-flung Trail."

The Dance Observer, 63 East 11th St., New York, N.Y. First issue, February, 1934. $1.00. Monthly. Sometimes combines issues.

Sensitizes those who are deeply interested in the modern dance to contemporary trends. It usually features an article on specialized dance forms, and also includes biographical sketches and recital criticisms. New compositions of dancers are discussed. Included is a dance calendar and notes on studios and activities of the dance in schools and colleges. This publication is exclusively for those interested in the modern dance.

Educational Screen, 64 East Lake Street, Chicago, Illinois. Ten issues. $2.00 per year.

This magazine gives estimates on new films on health, physical education, and recreation, whenever they are released. In the "School Section" many practical suggestions are given for vitalizing the curriculum through the use of pictures, slides, or posters, and integrating visual aids successfully in teaching.

Monthly News Letter, National Amateur Athletic Federation, Women's Division, 303 West 42nd Street, New York, N.Y. Yearly subscription: schools and clubs, $5.00; individuals, $2.00.

Each member of the National Amateur Athletic Federation receives a monthly news letter containing a membership list, copy of the platform, current literature, happenings and movements taking place in all branches of athletics, such as intramural play, play days, competition, legislation, and publicity material. This is inspirational and timely material containing convention notes, the keynotes of important addresses at the conventions, material useful for insertion in local newspapers, and other publicity that can be adapted to local needs.

The organization advocates a wholesome program of sports for girls in schools and colleges, under trained women leaders, suitable environment, and competition adapted to the physical requirements of the individual. Emphasizes sports for sport's sake.

Parks and Recreation, American Institute of Park Executives, 1829 Portage Avenue, South Bend, Indiana. $5.00.

The object of the publication is to gather and disseminate information about public parks, gardens, and recreation centers. It is most helpful for advance planning and construction along these lines.

The magazine carries profuse illustrations of good examples of public places which have been beautified through adequate planning for the enjoyment of all. There are special sections devoted to conventions, city planning, and the conservation of natural resources.

The Scholastic Coach, Official Publication of the Sportsmanship Brotherhood, 155 East 44th Street, New York, N.Y. Monthly, 9 months of the year.

This publication aims to foster sportsmanship in athletics throughout the world. The material is presented from the viewpoint of the high school coach. Includes detailed descriptions of good athletic plays and fundamentals in teaching, reviews of new rulings, and discussions of the function of athletics and the place they should have in the high school program.

Occasionally there is an article for girls. The magazine offers valuable aids in visual instruction pertaining to sports, including pictorial illustrations ready for use on the bulletin board. New books on sports are listed. The section "Here Below" features brief discussions and arguments on various phases of athletics.

The Sportswoman, The Sportswoman's Guild, 5800 North Mervine Street, Philadelphia, Pennsylvania. Established in 1924. $3.00 yearly. Ten months.

This magazine is the official organ of the United States Field Hockey Association and of the United States Women's Lacrosse Association. Of general interest to women's clubs and colleges, the magazine is on a sound amateur basis and sponsors high standards in women's athletics. It should prove helpful to managers of sports in planning their season's programs and in taking good care of equipment. A regular feature is the calendar of country-wide events, such as shows, races, tournaments and contests of international importance. New games are explained and techniques of major and minor sports are presented. There are articles by celebrities in the amateur world on figure skating, hockey, etc., and sectional association news is also included.

General Education Magazines

Journal of the National Education Association, National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. Active membership in the National Education Association, $2.00 yearly, entitles the member to the publication subscription. Nine issues yearly. (Indexed in *Education Guide.*)

This magazine is of interest to the physical education teacher because it gives a panoramic view of educational developments throughout the country of nonspecialized interest. The May issue contains a list of the sixty best educational books of the previous year. National Education Association publications of interest and value are announced in this journal—see under *Health Education.* Convention news is given, and pedagogic creeds and experiments in teaching are reported. The journal keeps one informed on all the important research that is published by the various sections of the Association, of which physical education is one.

School Life, Superintendent of Documents, Government Printing Office, Washington, D.C. $1.00 a year. Ten months.

As an official organ of the United States Office of Education, this publication is interested in presenting milestones in all phases of education. It contains an educators' bulletin board on which appear recent theses, new books, bibliographies, pamphlets. The magazine features new government aids by listing publications, posters, and films as soon as they come out; also radio programs, educational broadcasts, and reports on the high lights in foreign education. References for use on special occasions are also given. The June issue each year features a résumé of important happenings in education for the academic year.

HEALTH

Official

American Journal of Public Health and The Nation's Health, The American Public Health Association, 50 West 50th Street, New York, N.Y. $5.00. Monthly.

The *American Journal of Public Health* is the leading magazine devoted to current thought and activities in public health education. Each month reviews are made on important health events, experiments, existing conditions, and research that is aiding progress in this field. Editorials on outstanding issues in public health and other material are presented by authoritative writers, based on research and scientific experiment. A complete bibliography is classified annually with a digest of each book or article, and specific references. Every May a list, subdivided according to states, of summer courses to be given in the various college and university summer sessions is published.

The book reviews and reports are scholarly and complete. Association news and conference notes are given.

A yearly supplement containing the list of members accompanies the May issue. Indexed in *Reader's Guide*.

School Physicians' Bulletin, American Association of School Physicians, State Education Building, Albany, N.Y. Established in 1927. $1.50.

This magazine helps the teacher to become familiar with early symptoms of disease and incipient health defects in school children. Most of the articles are written by physicians for the purpose of promoting health among school children.

The magazine serves to clarify the relationships of dentist, nurse, and physician, with the classroom teacher, and thus gives the teacher an appreciation of the duties of the specialists and her relationship to them.

Dairy Council Digest, National Dairy Council, 221 La Salle Street North, Chicago, Illinois.

A series of scientific reports issued monthly to review and interpret the results of recent dairy products in the diet. Written from an unbiased point of view. Free on request.

Health Bulletin for Teachers, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N.Y. Issued monthly.

Teachers and administrators will be put on the mailing list upon request. A four-page folder written primarily to furnish the teacher or administrator with authoritative, up-to-date information on health matters. The articles center around a general theme for the school year, and are appropriate for classroom discussion. There is usually a vacation number and a number summarizing the year's progress in health. In order to achieve a closer relation between school, home, and community, one issue a year appears as a triple publication on some health problem, with related leaflets for parents and for boys and girls. These may be ordered in any quantity.

Journal of Home Economics, 101 East 20th Street, Baltimore, Maryland. Established in 1908. $2.50 a year. Ten months.

This periodical helps the educator become aware of the students' nutritional status, and encourages desirable habits in regard to food, exercise, and rest. Articles on costuming students for gymnasium, work, pageants, and swimming aid the teacher in being discriminating in her choice of materials.

Especially informative are abstracts of articles on child growth and development and family relationships taken from leading scientific magazines. "Signs of the Times" is a department of articles describing health education experiments. A variety of books of general interest are reviewed.

Hygeia, The American Medical Association, 535 North Dearborn Street, Chicago, Illinois. Established in 1923. Monthly. $2.50. (Indexed in *Reader's Guide*.)

This is the outstanding health magazine for the general public. It features a popular treatment of scientific material, dealing with prophylatic and medical health matters for the layman. It replaces quackery, health fads, and unfounded beliefs with the latest scientific information from specialists, presented non-technically. The magazine includes a question and answer section on health problems of general interest and reviews of new books on the subject of health.

The Journal of Social Hygiene, American Social Hygiene Association, 50 West 50th Street, New York, N.Y. $3.00 yearly.

Emphasizes the control of specific diseases and problems involving social life. Various approaches to sex instruction in public schools are offered. Presents this phase of health education clearly and simply. Social hygiene books are selected for teachers, parents, and young people. News from other countries. A yearly inventory of activities in communities and states, as reported by each state department of health. Notes on annual business meetings.

Mental Hygiene, National Committee for Mental Hygiene, 450 Seventh Avenue, New York, N.Y. $3.00. Quarterly.

A specialized magazine, the policy of which is toward treatment of the abnormal, psychopathic, and criminal; it always, however, contains articles that may be applied in normal relationships and may be valuable in preserving mental health. Many articles are helpful in solving the problems of student relationships in schools and colleges. Sex education is discussed. Occasionally there is an article bearing directly on physical education.

In each issue there appears a current bibliography of more than 150 references on health, human relations, and allied subjects. Extensive notes, comments, and book reviews are included.

Mouth Health Quarterly, Official organ of the Mouth Health Association, Essex Building, Minneapolis, Minnesota. Established in 1928. $1.50 a year with membership. Issued quarterly.

A magazine for the purpose of furthering mouth health education in all its varied phases. It makes the reader realize the basic importance of mouth hygiene, and brings an awareness of the connection between the condition of the mouth and the rest of the body. Well illustrated to show how diet affects the teeth, etc. Should be of permanent interest to adult and child in this specialized field. The magazine helps the teacher with the problems of children, such as going to the dentist.

Public Health Nursing, National Organization for Public Health Nursing, 50 West 50th Street, New York, N.Y. To members, $2.00; to non-members, $3.00.

This publication brings to the reader a new appreciation of what the nurse can mean in sharing the health responsibility of pupils in early school years. The magazine is primarily for the school nurse, with articles written mostly by doctors and nurses. However, the teacher will find the section on school health, in the September issue, which is exclusively a school number, of special interest. Occasional articles throughout the year deal with problems relating to school health.

Other interesting features are news notes on happenings in the field of health, briefs from current periodicals, book notes, and the yearly review of public health nursing.

Public Health Reviews. See "Book Reviews" section.

The Red Cross Courier, sponsored by the American Red Cross, 17th and D Streets, N.W., Washington, D.C. $1.00. Monthly.

This magazine contains helpful material on swimming, life saving, and first aid. It is useful in training people to meet emergencies and to prevent disasters. Important monthly features are the notes on institutes in swimming, life saving, and first aid, which are constantly working to raise the standards and are a great asset to safety and accident prevention. Other features are book reviews on welfare, relief, and social service; public health nursing and home hygiene; and dramatic descriptions of the work of life savers.

Safety Education, Education Division, National Safety Council through the cooperation and support of the National Bureau of Casualty and Surety Underwriters, 1 Park Avenue, New York, N.Y. $1.00. Ten months.

This magazine helps children meet the daily problems of their environment courageously through safety knowledge. Each issue contains a lesson plan, an assembly program, news items from the Junior Safety Councils and Patrols, a summary of accidents, and sections of plays, dialogues, stories, and verses of safety. The magazine conducts numerous campaigns and contests. A large colored poster designed for school use accompanies each issue.

Understanding the Child, The Massachusetts Society of Mental Hygiene, 3 Joy Street, Boston, Massachusetts. Quarterly. Free upon request. Financed by the Godfry M. Hyans Trust.

A compact little magazine offering scientific guidance for teachers on the adjustments of normal children from preschool age through adolescence. The articles are contributed by specialists active in the field. Other helpful features include case studies, current literature department, a department of questions and answers on children's problems, and pithy editorials that enable the teacher to become more actively aware of childhood difficulties.

Official Technical

Journal of American Medical Association, American Medical Association, 535 N. Dearborn Street, Chicago, Illinois. Established in 1883. $7.00. Weekly.

Contains news on medical education, abstracts from current medical literature, etc. Index numbers of *Journal* should be consulted for articles and books concerning health and physical education. Indexed in June and December.

RECREATION

Recreation, National Recreation Association, 315 Fourth Avenue, New York, N.Y. Established in 1905. $2.00. Monthly. (Indexed in *Reader's Guide*.)

The magazine was formerly *Playground*, 1908–1929; and then *Playground and Recreation*, 1929–1931.

In its underlying philosophy and practical application, the magazine is helpful in the organization and administration of playground and recreation groups of all ages. Its program is flexible, adapting itself to present needs.

It is devoted to a variety of activities for leisure-time enrichment. Besides those of a physical nature, recreations pertaining to appreciation and self-expression are discussed. The magazine deals with such creative activities as the drama, painting, dancing, nature study, hobbies, games, handcrafts, and music.

The yearbook number usually appears in May. Monthly features are an editorial page, "The World at Play," and an index of pamphlets and related articles of interest from other magazines. The diversified book reviews are listed by name in the yearly index.

PROFESSIONAL ASSOCIATIONS

PHYSICAL EDUCATION

Official

The American Physical Education Association, 311 Maynard Street, Ann Arbor, Michigan.

Organization.—Organized in 1885 as the Association for the Advancement of Physical Education. Present name adopted in 1905. Officers include president, president-elect, vice-president, past president, and secretary-editor. The secretary continues in office from year to year. A Governing Board and Legislative Council are included, on which the state and district physical education associations, the interest groups or sections, and a number of affiliated organizations are represented.

Membership.—Total membership approximates 7,000. Active membership is open to teachers at $2.00 a year, professional membership at $5.00, student membership at reduced rates.

Purpose.—The aims of the Association relate to health and physical education, and are: to awaken and promote a wide and intelligent interest, to acquire and disseminate accurate information, and to provide such means of promotion as will secure an adequate program.

Work.—In addition to sponsoring two publications, the Association through its various sections and committees works to collect information and set standards for the profession, to promote intelligent interest in the program on the part of educators and the general public, and to influence the development of adequate programs of health, physical education, and recreation in every state and town. Conducts annual national and district conventions. Has an information and reprint service. Carries on committee projects.

Publications.—*The Journal of Health and Physical Education* and the RESEARCH QUARTERLY.

Department of School Health and Physical Education of the National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C.

Organization.—Organized in 1894 as the Department of Child Study; in 1911 as the Department of Child Welfare; and in 1924 it merged with the Department of Physical and Health Education. Is one of twenty-three departments of the National Education Association, besides the National Council of Education. Each department is granted complete autonomy where officers are concerned, as well as in carrying on its activities.

Membership.—Active membership is open to teachers at $2.00 per year, professional membership at $5.00, and undergraduate at reduced rates.

Purpose.—Seeks to unify physical education with other work of the National Education Association, to prepare the programs for the annual summer meetings, and to promote curriculum development and teacher education research, and contribute to the progress in practice and theory. Aims to make contributions to all phases of the field, and to maintain a service where lists of agencies and names of individuals who have contributed in any branch of the work may be secured.

Publications.—*Reports of the Joint Committee on Health Problems in Education of the National Education Association and American Medical Association, Journal of the National Education Association* (monthly), *Research Bulletin,* and other periodicals, many of which are related to health. Free to members.

Health and Physical Education in the United States Office of Education, Office of Education, Department of the Interior, Washington, D.C.

Organization.—Organized in 1869. Health Consultant in Hygiene.

Purpose.—To furnish information about health.

Publications.—Small edition for free distribution on first publication. Copies obtained at cost from Government Printing Office. List of publications on health and physical education, and surveys and reports of the work of the Commissions of this Office sent upon request.

Affiliated

College Physical Education Association.

Organization.—Organized on November 6, 1897, as the Society of College Gymnasium Directors. The name was changed to the Society of Directors of Physical Education in Colleges in 1908, then to its present name. A constitution defines the purpose, qualifications for members, committees, fees, and time of meetings.

Membership.—Membership is selective, with eligibility dependent on teaching experience in college, subject to the approval of members, recommendation by the Council, and election of a two-thirds vote of all members. They must be active in college physical education in order to retain their membership. An initial fee of $5.00 is required and the annual dues are $2.00.

Purpose.—The object of this organization shall be the advancement of health and physical education in institutions of higher learning.

The Society maintains a standing committee on college entrance credits, and is endeavoring through this committee to induce colleges throughout the country to grant entrance credits for physical education work completed in secondary school.

Publications.—Published a strength test for college men, which is probably the first attempt at tests and measurements in physical education; also, reports showing the relative value of various types of physical activities for different educational levels. These reports appear in the *Proceedings.* The *Proceedings* of the annual meetings of the Society of Directors of Physical Education in Colleges are published annually in March or April, and may be secured by non-members, at a nominal fee, by writing to the Secretary.

National Amateur Athletic Federation of America, Room 1712, 110 East 42nd Street, New York, N.Y. *Women's Division,* 303 West 42nd Street, New York, N.Y. *Men's Division,* 39 Broadway, New York, N.Y.

Organization.—A federation of national organizations interested in athletics and amateur in standing.

Women's Division:

Organization.—A federation of organizations concerned with athletics and physical education for women and girls. Its officers include two chairmen, and an office executive. Meetings are held annually, usually in March or April.

Membership.—Open to those endorsing the standards expressed in the platform of the organization. Over five hundred members, mostly organizations.

Purpose.—To inaugurate and lead a national movement for sane and constructive athletics and physical recreation for the girls and women of America; to bring together all groups interested in such activities in a cen-

tral and unified body for purposes of more efficient correlation and cooperation; to formulate and establish national standards for the sound conduct and development of girls' athletics; to help groups put those standards into concrete effect in their work; to make possible a wider participation in athletic activity than has heretofore been attempted; and to serve as the national research body and clearing house for all problems of athletics and physical recreation for girls and women.

Publications.—Monthly news letter, report of Annual Meetings, reports of Conference on Training and Leadership in Athletics for Girls and Women, and miscellaneous pamphlets.

Men's Division:

Organization.—Organized about 1922. Meetings held annually.

Membership.—Eighteen national organizations.

Purpose.—To extend and develop the nation's athletic activities to the end that more boys shall receive athletic training; and to make use of athletics as a medium for citizenship training.

Publication.—Proceedings.

National Association of Directors of Physical Education for Women in Colleges and Universities.

The National Association of Directors of Physical Education for Women in Colleges and Universities is governed by constitutions adopted on the basis of affiliation. There are three sections, Eastern, Mid-West, and Western.

Eastern:

Organization.—Organized in 1915.

Membership.—Directors or heads of departments of physical education for women in colleges and institutions of similar standing in the eastern section of the United States. Dues are $5.00 a year.

Purpose.—To discuss the problems of organization and administration of departments of physical education in colleges and by definite study and research to increase the usefulness of such departments. Mainly a discussion and study group, and the topics discussed cover a great variety of interests. Some of the papers are studies and the result of compilation of material, others express valuable opinions, and others are reports of interest to the Association. Has fostered a bill making physical education compulsory for the public schools. It has consistently voted against intercollegiate athletics for women and the participation of women in the Olympic games.

Mid-West:

Organization.—Organized in 1917.

Membership.—Members of physical education department in women's colleges in the Mid-West.

Purpose.—To study the problems and promote the interest of departments of physical education for women in the Mid-West, encourage research, and to cooperate with the national association for the purpose of increasing

its usefulness in advancing the standards of education and the ideals of the profession.

Western:

Organization.—Organized in 1922.

Membership.—Active members must be directors of physical education in colleges of the best standing; associate members (without voting power) may be directors of physical education in other schools within the western territory.

Membership includes all institutions containing a department of physical education for women of the following type: two-, three-, and four-year state normal schools, junior colleges, and four-year colleges—each institution to pay one membership fee. There is one voting delegate from each member institution. Staff members may attend conferences on payment of conference fee.

Purpose.—To promote interest of the departments of physical education for women in the western territory.

National Federation of State High School Athletic Associations.

Organization.—Organized in Chicago in 1920 as the Mid-West Federation of State High School Athletic Associations. Includes president, vice-president, secretary-treasurer, members of executive committee, and members. Governed by a constitution.

Purpose.—To insure the control and direction of high school athletics by high school men, to limit competition in interstate contests to members in good standing with their respective state associations, to promote pure amateur sports in the United States, and to see that uniformity in interstate contests is secured.

Affiliated Organizations.—National Amateur Athletic Federation, and National Collegiate Athletic Association.

Membership.—Thirty-three states enrolled in the membership. Prepared interstate contract forms which can be obtained from the executive officers of the various states on the membership roll. A system of informal regional conferences has been established and one of these conferences is held annually at Chicago. A meeting is held annually with the Department of Superintendence.

National Collegiate Athletic Association, 6 North Michigan Avenue, Chicago, Illinois.

Organization.—Organized in 1906. Rules Committees for football, baseball, boating, gymnastic rules, ice hockey, lacrosse, swimming, volleyball, track, and wrestling. Meetings held annually, the last week in December.

Membership.—One hundred thirty-three colleges and universities, six athletic associations, and six preparatory schools. Open to any college or university in the United States.

Purpose.—To regulate and supervise college athletics in the United States in order that they may be maintained on a high plane.

Publication.—Annual Reports.

HEALTH

Official

American Public Health Association, 50 West 50th Street, New York, N.Y.

Organization.—Organized in 1872.

Membership.—Individuals, approximately 4,000; constituent organizations, 15. Membership, $5.00 annually, with magazine.

Purpose.—To protect public health by means of surveys, studies, and reports on problems of public health administration, research, education, and standardization. Has an information service.

Publications.—*American Journal of Public Health*, a monthly, $5.00 a year, free to members; *Annual Year Book*, sold at cost.

Health Section of the World Federation of Education Associations, 1201 Sixteenth Street, N.W., Washington, D.C.

Organization.—Organized in 1923.

Membership.—Full membership open to any nation-wide education association. Associate membership to any organization directly connected with education. Meetings biennially.

Purpose.—To give educators the opportunity to review the latest and best in health education and to afford them an effective means of exchanging knowledge and experience in promoting the health of children.

Publication.—The Health Section issues limited editions of reports of every odd year, beginning in 1925 (1931 missing).

American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

Organization.—Organized in 1847.

Membership.—Open to members of the medical profession only.

Purpose.—This official association aims to promote science and art of medicine and the betterment of public health.

Publications.—Many specialized publications, including the weekly *Journal of the American Medical Association*, and *Hygeia*, a monthly journal.

American Nurses' Association, 50 West 50th Street, New York, N.Y.

Organization.—Organized under the title of "Associated Alumnae" in 1896.

Membership.—A membership organization supported entirely by its members.

Purpose.—Its object is to enlarge and protect nursing education, nursing interests, and nursing practice. It is the official organization of registered nurses.

Publication.—*The American Journal of Nursing.*

Affiliated

The American Social Hygiene Association, 50 West 50th Street, New York, N.Y.

Organization.—A non-profit voluntary health and welfare agency.

Membership.—Voting members comprising both individuals and organizations are elected. Dues, $3.00 a year.

Purpose.—To secure dependable views and cross sections of public opinion on social hygiene. Will exchange data and experiences with local groups, and functions as a national voluntary clearing house for social hygiene activities. Furnishes information on social hygiene subjects through regular publicity channels, convention programs, lectures, motion pictures, etc.

Publications.—*The Journal of Social Hygiene*, nine months, $3.00. *Social Hygiene News*, monthly, free to members.

National Committee for Mental Hygiene, 50 West 50th Street, New York, N.Y.

Organization.—Organized in 1909.

Membership.—Associate membership, $5.00, including complimentary magazine subscription.

Purpose.—The National Committee seeks to achieve its purposes by upholding standards of care and treatment of the mentally ill; promoting programs for the training and social adjustment of the mentally deficient; stimulating research, encouraging the training of mental hygiene teachers, securing public understanding and support of psychiatric, child guidance, and other mental activities; assisting in the organization of state and local societies for mental hygiene; cooperating with government and private agencies whose work touches any part of the field of mental hygiene.

Publication.—*Mental Hygiene Quarterly.*

National Organization for Public Health Nursing, Inc. 50 West 50th St., New York City.

Organization.—Organized in 1912.

Purpose.—To promote and develop public health nursing, through cooperative relationships with other health and social agencies. Activities include a central bureau of information, advisory consultation, special statistical studies. It is of both individual and corporate membership.

Publication.—*Public Health Nursing.*

National Society for the Prevention of Blindness, 50 West 50th Street, New York, N.Y.

Organization.—This society was organized in 1915 as the National Committee for the Prevention of Blindness; the name was changed in 1927.

Purpose.—To ascertain the causes of blindness and to bring knowledge of eye hygiene in popular form to children and to adults.

Publications.—*News Letter*, which is issued occasionally; *Sight-Saving Class Exchange*, issued five times a year; and *Sight-Saving Review* (quarterly). First two copies free, last $2.00 per year.

National Tuberculosis Association, 50 West 50th Street, New York, N.Y.

Organization.—Founded in 1909 under the name of National Association for the Study and Prevention of Tuberculosis.

Membership.—The purchasing of Christmas Seals published by the Association enrolls one in the organization.

Purpose.—The object of the organization is to study the field of tuberculosis in its various forms and relations, in order to disseminate knowledge among school children concerning the cause, treatment, and prevention of the disease.

Publishes books, bibliographies, motion pictures, and tuberculosis exhibits.

Publications.—*The Journal of the Outdoor Life, American Review of Tuberculosis*, a monthly *Bulletin*, *Tuberculosis Abstracts* (designed principally for use by physicians), *The Transactions* (annual record of minutes of meetings and subjects discussed).

Affiliated Associations.—American National Red Cross, National Health Council, International Union Against Tuberculosis.

Private Promotional Organizations

American Association of School Physicians.

Organization.—Organized in 1927.

Purpose.—To stimulate greater interest among physicians in school medical inspection; to study and advise regarding health problems among school children; to cultivate a closer cooperative relationship among all agencies interested in school work, and to improve that service.

Publication.—*Bulletin,* monthly, $1.50 a year; free to members.

National Safety Council, Education Division, 1 Park Avenue, New York, N.Y.

Organization.—Organized in 1912 as an outgrowth of the Cooperative Safety Congress called by the Safety Committee of the Association of Iron and Steel Electrical Engineers.

Managing Director. Council includes approximately 4,500 individuals, as well as industrial concerns, schools, insurance companies, railroads, chambers of commerce, clubs, and civic organizations.

Membership.—Open to all.

Purpose.—Besides an extensive industrial program, it is actively interested in promoting general safety, teaching principles of safety to the public, and establishing definite safety education programs in the school.

Publication.—*Safety Education* (*A Magazine of Good Adventure*), monthly, from September to June.

The Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N.Y. School Health Bureau, Welfare Division.

Organization.—This Bureau is guided by an educational advisory group.

Purpose.—The humanitarian purpose behind the educational service offered through the School Health Bureau, Welfare Division of this organization, is health education and the extension of life. Special consideration is given problems in the field through correspondence and consultation.

Publications.—Besides the health booklets, motion picture aids, and research studies, one of the most valuable contributions to teachers and administrators is the *Health Bulletin for Teachers*, which is issued monthly. The monthly *Statistical Bulletin* may also be obtained by those interested in technical data on mortality and morbidity.

National Dairy Council, 307 North Michigan Avenue, Chicago, Illinois.

Organization.—Organized in 1919; began its active program in 1921. Fourteen regional units of the National Dairy Council have been established in the United States.

Purpose.—To promote school health programs through health literature and health projects. To contribute knowledge concerning the importance of milk in the diet.

This outside agency has a definite contribution to make to the school health program. Plays and other projects will be presented on request.

Publications.—Issues a series of scientific reports monthly to review and interpret the results of recent dairy products in the diet. Written without bias. Mailed free.

Health Education Material

National Safety Council, 20 North Wacker Drive, Chicago, Illinois.

Organization.—Organized in 1912.

Membership.—Open to all industrial concerns, schools, insurance companies, and other public and private agencies.

Purpose.—To prevent human injury and death due to accidents in public, home, and industrial life; to promote health in industry. The Council's activities include research into technical safety problems, education by the use of national publications, general publicity, and regional conferences.

Publications.—*Safety Education*, Monthly, $1.00. *National Safety News*, free to members, monthly. *Safe Driver.*

RECREATION

Official

The National Recreation Association, 315 Fourth Avenue, New York, N.Y.

Organization.—Organized as Playground Association of America, in 1906, Playground and Recreation Association of America, 1911–1929.

Purpose.—To secure wholesome play and recreation opportunities for young and old by means of helping to establish year-round recreation system in cities and small communities, and thereby do away with anti-social activity.

Publication.—*Recreation*, the official magazine of the National Recreation Association.

Correspondence service, a consulting service, a field service for Negro communities, an advisory service for supervisors of recreation centers, a physical education field service, and a service for the encouragement of the arts and crafts as recreation.

Affiliated

Boy Scouts of America, National Council, 2 Park Avenue, New York, N.Y.

Organization.—Organized in 1910. President, treasurer, and chief scout executive. Controls all smaller councils by system of representation.

Membership.—Boys above twelve. Dues 50c per year.

Purpose.—To train boys for citizenship through an outdoor program of recreational and educational activities. It is a non-military organization.

Publication.—Official organ is *Boys' Life.*

Camp Fire Girls, 41 Union Square, New York, N.Y.

Organization.—Organized in 1912. President, treasurer, and national executive secretary.

Purpose.—The organization offers many-sided programs for the training and development of girls.

Girl Scouts, 670 Lexington Avenue, New York, N.Y.

Organization.—Organized in 1915.

Membership.—Individuals, 276,855.

Purpose.—To help girls realize the ideals of womanhood, as a preparation for their responsibilities in the home and in service to the community. Methods of training are emphasized which develop initiative, self-control, resourcefulness, and service to others. Their year-round program of outdoor activities is sponsored by both schools and colleges.

Young Men's Christian Association of the United States of America, National Council, 347 Madison Avenue, New York, N.Y.

Organization.—Organized in 1883. Name changed in 1924 from International Committee of Young Men's Christian Association.

Purpose.—To minister to the needs of boys and young men, helping them meet the problems and conditions of present-day life, and giving them greater self-development of body, mind, and spirit.

A positive program is offered for the teaching of character ideals by the promotion of health education and physical activity.

Publications.—*Young Men,* monthly, $1.50 a year; the *Intercollegian,* $1.25; *National Council Bulletin,* bi-monthly, 10c a copy; *Christian Citizenship,* ten issues yearly, $5.00; and *Educational Council Bulletin,* quarterly, $2.50 a year.

Young Women's Christian Association of the United States of America, 600 Lexington Avenue, New York, N.Y. *National Board.*

Organization.—Organized in 1906.

Purpose.—To unite in one body the Young Women's Christian Association of the United States. To establish, develop, and unify such associations; to participate in the work of the world's Young Women's Christian Association; to advance the physical, social, intellectual, moral, and spiritual interests of young women.

The National Board is a resource for information and advice to local associations, and carries on a national program of education and public affairs.

Publications.—*Woman's Press,* $2.00 a year; *Bookshelf,* $1.50 a year; and *Catalogue,* free upon request.

PUBLISHERS

In the *Journal of Health and Physical Education*, pp. 40–41, March, 1935, is a "Check List of Publishers," who specialize in the field of physical education or who contribute substantially to certain aspects of the field. The list is selective, limited to those who advertise in this official magazine.

A complete "Directory of Publishers" appears in the *United States Catalogue Cumulative Book Index*, H. W. Wilson Company, New York, Publishers.

RESEARCH

Research Agencies

United States Office of Education, Washington, D.C.

This Office furthers education by the compilation and dissemination of data concerning university, college, and school surveys, experiments in education, and research.

From 1870 to 1929, this Department was called the Bureau of Education, and published: *Physical Education Series*, Nos. 1–10, 1923–1929; *School Hygiene Series*, Nos. 1–15, 1927–1929; *Health Education Series*, Nos. 1–20, 1919–1927.

In 1929 the Bureau of Education changed its name to the Office of Education, and at the same time changed its policy in publications. It began the publication of:

Circulars.—1930 to date. Mainly bibliographies, directories, and tests of various types in mimeographed form.

Leaflets.—1930 to date, ranging in length from two to eight pages.

Pamphlets.—1930 to date. Material from the rapidly changing fields of education is included in this series. The pamphlets are from eight to thirty-two pages in length.

Bulletins.—1906 to date. Issued at intervals. Of special interest to the physical education teacher would be: Bulletin 17, *National Survey of Secondary Education Monographs*; Bulletin No. 27, *Intramural and Inter-Scholastic Athletics*; Bulletin No. 28, *Health Work and Physical Education.*

Other interesting bulletins published by the United States Office of Education are *Biennial Survey of Education*, *Educational Directory*, *Handbook of Educational Associations and Foundations*, and *Research Studies in Education.*

The United States Public Health Service, Washington, D.C.

The Public Health Service is under the Treasury Department, and is in direct charge of the Secretary of the Treasury. The affairs of the Service are administered through eight administrative divisions established by law. It is authorized to assist all state health authorities and cooperate with them. The research of this department goes into all branches of investigation pertinent to the nation's health. Also see "Public Health Service" each year in the *Americana Encyclopedia* for research statistics of the fiscal year.

Following are some of the important functions of the United States

Public Health Service: prevention of disease and the spread of disease; dissemination of public health knowledge; study of mental diseases and drug addiction; supervision and control of biologic products; medical and hospital care for certain beneficiaries and institutions.

Two current journals are issued by the Public Health Service: the *Public Health Reports,* weekly, and the *Venereal Disease Information,* monthly. Reports of research are issued from time to time and information for public health administrators and the general public is published.

Public Health Bulletins, 1910 to date: Non-technical studies on the cause, treatment, and prevention of disease; school and industrial sanitation; occupational diseases; investigation of epidemics; and sanitary surveys.

A compilation of important facts concerning organization laws, activities, and resources of these departments: Reprint No. 128—*Physical Measurement of Boys and Girls of Native White Stock; Public Health Report Supplement,* 24; *Keep Well Series,* 24; M1-13, 1919–1921.

Annual Report of the Surgeon General, 1933, pages 128–175. This includes a summary on health conditions in the work in general and in the U.S. particularly. Among the division reports given are those in scientific research in diseases, sanitary reports and statistics and mental hygiene.

United States Department of Agriculture, Washington, D.C.

Leaflets and Farmers' Bulletins: Popular material, limited to specific practical directions, recommendations, remedies, and methods.

Service and Regulatory Announcements.—"The Food, Drug, and Insecticide Administration" issues the above announcements weekly, monthly, or whenever essential to the work. Gives material on enforcing the Food and Drug Act.

Bulletins.—The Bureau of Home Economics conducts much research on clothing, food, food values, and all other phases of nutrition.

White House Conference, Washington, D.C.

There have been three White House Conferences called by Presidents of the United States in the interest of children. They convened in 1909, in 1919, and in 1930.

The first Conference dealt largely with the dependent child, the second with health matters and economic aspects, and the third with all aspects of the child, with special emphasis on health matters for the normal child as well as for the dependent, handicapped, or abnormal. Each of these published a *Report* of the results of their investigation.

The White House Conference of 1930 was first known as the "White House Conference on Child Health and Protection."

Purpose of the Conference.[1]—"To study the present status of the health and well-being of the children of the United States, and its possessions; to report what is being done; to recommend what ought to be done and how to do it."

The Conference was divided into four sections—Medical Service, Public Health Service and Administration, Education and Training, and the Handicapped—with numerous committees and subcommittees.

[1] As stated by Herbert Hoover, then President of the United States.

Some twelve hundred committee members for a year experimented in different fields of child health, care, training, and protection, made nation-wide surveys of the status of children and the forces affecting their development. Their reports state principles and aims, outline methods, and make available the experience of the different states, communities, and private agencies in protecting children and providing for their training and development.

Two meetings were held at the completion of these studies—one in Washington, attended by about 5,000 persons and a general conference in November, 1930, and a meeting of the Medical Section in February, 1931. Reports were submitted, discussed, and adopted; and findings, conclusions, and recommendations were made. Aims of the group and principles for attaining them were epitomized in the "Children's Charter."

In 1931, the Conference issued the *Report of the White House Conference, 1930,* containing the speeches delivered at the Conference and abstracts of the Committees' reports, with their recommendations.

As soon as the reports began to be available a follow-up service was organized in order to publish the reports, disseminate the findings of the Conference, and translate principles into practice and recommendation into action. In 1931 and 1932, were held twenty-nine state conferences, eight city or regional conferences and seventy-five county conferences. The staff of the White House Conference gave assistance in the building of programs, supplying copies of the "Children's Charter" for distribution, lending exhibits and a library of Conference publications, and providing or securing speakers and discussion leaders.

Bureau of Curriculum Research, 521 Russell Hall, Teachers College, Columbia University, New York City.

Offers material available for use in the Bureau on research in curricula; basic materials, different phases of the curriculum and examples of curricula. Mimeographed material on criteria for evaluating both health and physical education courses, state, city, and general courses. The Curriculum Construction Laboratory publishes a list of outstanding courses of study (mimeographed) price 10 cents.

Research Studies

To cover completely the researches that have been made in the field of education, the most authentic sources chronologically are the Congressional Library's annual list of Doctoral dissertations starting in 1912; the annual list published by the Bureau of Educational Research at the University of Illinois, 1917 to 1927; and *Ten Years of Educational Research,* 1918–1827, by Walter S. Monroe. Next was established the annual *Bibliography of Research Studies in Education,* Bulletin No. 36, 1927–1928 (listing the previous year 1926–1927), subsequently Bulletin No. 13, 1929–1930; Bulletin No. 16, 1930–1931; Bulletin No. 7, 1932–1933. These annual bibliographies list research studies under athletics, women, health and supervision, safety, mental hygiene, physical education, school buildings and equipment,

and play and recreation. Well annotated. Studies completed by research bureaus of state and county boards of education and educational associations are included. Each issue contains an alphabetical list of institutions represented and an author and subject index.

Doctoral Dissertations Accepted by American Universities, 1933–1934. The National Research Council, compiled for the National Research Council, The American Council of Learned Societies, and the Association of Research Libraries. H. W. Wilson Company, New York, 1934.

This is the first edition of a new annual service needed in the field compiling a selective list of Doctors' dissertations in the various fields of study from seventy-nine institutions. There are seven arbitrary classifications; the dissertations on health, physical education, and recreation will be found under the headings "Social Science" and "Education." The following are special features: a list of periodic university publications that abstract their dissertations; dissertations in progress; and detailed analyses of doctorates by universities and by subjects; also an authors' index.

Research Studies Needed in Physical Education

Browne, A. D. "Suggested Subjects for Physical Education Theses and Dissertations." RESEARCH QUARTERLY, Vol. II, No. 2 (May, 1931), pages 128–136.

In this article Part I lists about three hundred subjects which the author feels would warrant research. Part II gives the fifty theses which have been written at the George Peabody College for Teachers, Nashville, Tennessee, and Part III names approximately fifty which have already been selected and are in the process of preparation.

Browne, A. D. "A Classification of Completed Theses and Selected Subjects." RESEARCH QUARTERLY, Vol. II, No. 3 (October, 1931), pages 119–151.

Under some 30 headings a total of 492 completed theses in physical education and 111 selected subjects under way are listed. Name, author, school are given. No annotations.

Research Periodicals

RESEARCH QUARTERLY of the American Physical Education Association.

See section entitled "Periodicals."

Review of Educational Research

Every three years this magazine summarizes the research in health and physical education. (May sometimes be located through such subheads as "Curriculum" and "Methods.")

STATISTICS

Athletic Statistics

The Athletic Almanac (Spalding Athletic Library). American Sports Publishing Company.

Gives world records in track, field, and swimming for both men and

women, as sponsored by the American Athletic Union. Also names the All-American team, all-college, and all-scholastic teams selected.

The World Almanac and Book of Facts. H. W. Wilson, New York City. Published annually.

Under the heading "Sporting Events" are given about forty pages of records of indoor and outdoor events, including Olympic Games, track and field, major sports events, swimming, and the like.

Education Statistics

Biennial Survey of Education. Biennially, 1918 to date.

Covers general field from state and city systems, private and denominational schools, colleges, universities, and teacher-training colleges. Statistics relating to the field of physical education in the latest issue (1928–30, pp. 353–381) may be found under "Hygiene and Physical Education." The contents for this number includes: White House Conference, a septennium of school health work, buildings, sanitation, health examination, dental disease and treatment, nutrition, anthropometry, health education, mental hygiene, athletics, physical education, research in play, school playgrounds, community use of school property, planning ahead, the summer camp in higher education, land-grant colleges, and legislation.

Written by the Consultant in Hygiene, Office of Education.

Recreation Statistics

Recreation.

The magazine, *Recreation*, has published a Yearbook since 1911 (with the exception of 1916 and 1917) giving statistics on public recreation centers. No private programs, facilities or leaders are recorded.

These statistics include: (1) all community recreation leadership and facilities in cities throughout the United States; (2) officers of recreation commissions and boards of education; (3) playground and community recreation activities. This Yearbook number is usually in May.

Vital Statistics

American Journal of Public Health and the Nation's Health. Monthly.

Statistical Abstracts.

Annually vital statistics are given by the Department of Commerce, United States Government Printing Office, in their *Statistical Abstracts,* 1932.

Biennially Hygiene and Physical Education under the Division of Health and Physical Education of the United States Government Printing Office. Published in the *Biennial Survey,* Vol. I.

Statistical Bulletin. Welfare Division, Metropolitan Life Insurance Company. Monthly.

The subject of vital statistics and an interpretation of the findings are a regular feature of the above.

The Affleck yearly bibliographies always include this subject heading.

National Study of Professional Education in Health and Physical Education

National Committee Report on Standards

Report submitted by the National Study Committee: G. B. Affleck, W. G. Moorhead, Gertrude Moulton, E. M. Sanders, Harry A. Scott, N. P. Neilson, *Chairman*

BRIEF HISTORY OF THE PROJECT

THE Department of School Health and Physical Education of the National Education Association held a meeting in Los Angeles, California, on July 1, 1931. At this meeting a resolution was introduced and approved authorizing Dr. Jay B. Nash, President of the Department, to appoint a national committee whose duty it should be to formulate a set of standards to be used in the evaluation of institutions professing to prepare physical education teachers.

Dr. Jay B. Nash appointed Mr. N. P. Neilson, then Chief of the Division of Health and Physical Education, California State Department of Education, as Chairman of the Committee, and agreed to the plan of having the state directors of health and physical education serve as members of the National Committee. The chairman communicated with the other state directors, informed them of the plan, and asked them to serve as members of the National Committee. With one or two exceptions, their replies were favorable.

Some preliminary suggestions were prepared and were presented by Dr. Nash, for the chairman, to the state directors of health and physical education at their annual meeting held in New York City, December, 1931. The report was considered and the project discussed from a number of points of view. The group recommended that a report of progress be presented as the first order of business at their next meeting to be held in Philadelphia, April 20, 1932.

The original plan of procedure called for the formation of a state committee in each state which had a state director of health and physical education. With the advice of his committee, each state director was to work out a suggested solution to the problem. The various plans were then to be reviewed by a small executive committee and combined into one report which would be presented for discussion. But the demand for a report in April did not leave the committee time to proceed as originally planned. In order to save time the chairman decided to outline the problem in detail after securing all possible assistance from local persons who were interested. On March 1, 1932, eighteen pages

of mimeographed material under the title "A Preliminary Report of the Committee on the Evaluation of Teacher Training Institutions Preparing Physical Education Teachers" were sent to the state directors of health and physical education. Each state director was asked to secure the criticism of persons in his state who he thought would be interested and have something constructive to offer. They were asked to send in the criticisms on or before April 6 so a revised report could be duplicated and sent East for the meetings of the American Physical Education Association in Philadelphia, beginning April 19, 1932.

The complexity of the problem and the limited time in which to reply were perhaps the two major reasons for the return of suggestions from a rather limited number of persons. Most of those which came in were thorough, and a generous response from the state directors proved beyond a doubt that they were very much interested and would do a thorough job if given sufficient time.

Instead of rewriting the report made March 1, a second report containing a complete summary of the criticisms received was made. The criticisms were segregated so they could be compared easily with the sections of the previous report to which they referred. Both reports (the first made March 1, containing eighteen pages, and the second made April 19, containing thirteen pages of criticisms of the first report) were presented at the American Physical Education Association Convention held in Philadelphia. Discussion of the reports at the convention resulted in the suggestion that six national organizations sponsor the study and that at least two years be taken to complete it. In conformity with the above suggestion, a national committee of six members was appointed as follows:

National Study Committee

Mr. G. B. Affleck, Associate Director of Physical Course, Y.M.C.A. College, Springfield, Massachusetts, representing the American Physical Education Association.

Mr. W. G. Moorhead, State Director of Health and Physical Education, Harrisburg, Pennsylvania, representing the Society of State Directors of Health and Physical Education.

Mr. E. M. Sanders, Head, Department of Health and Physical Education, State Teachers College, Indiana, Pennsylvania, representing the City Administrators of Health and Physical Education. (Dr. Harry Burns, Department of Hygiene, Pittsburgh Public Schools, Pittsburgh, Pennsylvania, was first appointed but later declined to serve. At the suggestion of Doctor Burns and Mr. James E. Rogers, Mr. E. M. Sanders was appointed.)

Dr. Gertrude Moulton, Director, Department of Physical Education for Women, Oberlin College, Oberlin, Ohio, representing the Women Directors of Physical Education in Colleges and Universities.

Dr. Harry A. Scott, Director, Department of Physical Education, The Rice Institute, Houston, Texas, representing the College Physical Education

Association. (Formerly known as the Men Directors of Physical Education in Colleges and Universities.)

Mr. N. P. Neilson, Chief, Division of Health and Physical Education, State Department of Education, Sacramento, California (now Associate Professor of Physical Education and Hygiene, Stanford University), representing the Department of School Health and Physical Education of the National Education Association. (Chairman of National Committee.)

The next step in organization was to arrange the forty-eight states into six districts and place members of the national committee in charge. The assignments were:

District I.—Maine, New Hampshire, Vermont, New York, Massachusetts, Rhode Island, Connecticut, and New Jersey—Mr. Affleck in charge.

District II.—Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida—Mr. Moorhead in charge.

District III.—Michigan, West Virginia, Kentucky, Tennessee, Alabama, Mississippi, and Louisiana—Mr. Sanders in charge.

District IV.—Minnesota, Wisconsin, Iowa, Missouri, Illinois, Indiana, and Ohio—Dr. Moulton in charge.

District V.—Texas, Kansas, Oklahoma, Colorado, North Dakota, Nebraska, South Dakota, Arkansas, and New Mexico—Dr. Scott in charge.

District VI.—Washington, Oregon, California, Montana, Idaho, Nevada, Utah, Arizona, and Wyoming—Mr. Neilson in charge.

Each member of the National Study Committee was asked to appoint a state chairman for each state in his district and to follow the policy of appointing state directors of health and physical education as state chairmen in all states having such officers. After acceptance, state chairmen were requested to select their own committee members, using their own judgment as to the number of members to be selected and the interests to be represented. By September, 1934, state committees had been organized in all states except Georgia (since organized), New Mexico, and Wyoming. The committees include approximately 350 people most of whom are directly interested in the problem being attacked. The names of all state committee members appear in the 1934 report printed in the September, 1934, issue of the *Journal of Health and Physical Education,* published by the American Physical Education Association.

State committees were organized with two purposes in mind: (1) the National Study Committee desired the constructive advice of experts in the field, and (2) it seemed desirable to acquaint experts in the field with the study as it progressed. Reports have been mimeographed by the chairman of the National Study Committee. Copies of reports have been sent to the National Study Committee members in charge of districts, then relayed by them to chairmen of state committees, who in turn have forwarded copies to members of their state committee. Criticisms of the reports have been relayed back through this organization to the chairman of the National Study Committee. This

process has determined in large part the nature of the results achieved.

A mimeographed report under date of April 4, 1933 (report contains twenty-one pages) was presented at the Louisville Convention of the American Physical Education Association in 1933, at the meeting of the Department of School Health and Physical Education of the National Education Association in Chicago, 1933, and at the meeting of the College Physical Education Association in Chicago, December, 1933. From the nature of the criticisms of this report it became clear that the proposed standards should be greatly simplified and should contain only those minimum essentials to which most of our profession will agree. Mimeographed reports for 1934 and 1935 were presented at the American Physical Education Association conventions in Cleveland and Pittsburgh respectively. None of these reports have been considered final reports, it being the purpose of the National Study Committee to carry them forward from year to year.

GENERAL STATEMENT OF THE PROBLEM

Professional education of health and physical education teachers is at the present time in an experimental and flexible state of development. A large number of institutions in the United States profess to prepare health and physical education teachers for the elementary and secondary schools. Their ability to prepare these teachers varies greatly. The great variety of names, numbers, and contents of course offerings makes it extremely difficult for officials to evaluate justly the certificates of credit presented by students who transfer from institution to institution or who desire state certification for teaching.

Boards of education, school superintendents, and principals generally desire to employ well-qualified teachers. In the field of health and physical education, they are much confused because they do not know which teacher-training institutions are doing good work. How can a school administrator who interviews an applicant for a position in health and physical education be sure the professional preparation has been of good quality? Can a set of standards be formulated and then used to evaluate the programs of institutions professing to prepare health and physical education teachers for certain types of positions? Can we assist administrators to improve school programs through better teachers and help teacher-training institutions themselves to do their work better, by developing standards which institutions must meet and maintain before their names appear on an approved list?

In developing standards with which to evaluate the ability of an institution to prepare teachers of health and physical education, the point of beginning is with the needs of the child. A study of the intellectual, impulsive, menti-motor, and organic needs of children and the values of activities in supplying these needs will determine the program of health and physical education to be provided at a particular school level.

The program must be taught by a teacher. The teacher must be prepared in an institution. The teacher-training institution should provide the staff, facilities, and courses which will prepare the teacher to teach well the program of health and physical education that the child needs. It is the function of the state to choose the institutions which may prepare teachers for certain fields of service and then grant certificates which entitle the trainee to teach after he has completed satisfactorily the prescribed course, and has met other essential requirements.

While state certification requirements and teacher-training curricula are intimately related, agreement on the former should not precede agreement on the latter. State certification requirements should grow out of a knowledge of the teacher-training program necessary for the preparation of teachers so they will be competent to teach the program the child needs. In our problem, therefore, we need not be greatly disturbed over the inequality between states in their standards of certification. After our problem has been solved we shall be greatly concerned with state certification requirements. Our first problem is to secure substantial agreement on what constitutes an adequate professional education program in health and physical education, and how this program can be measured.

ANALYSIS OF THE GENERAL PROBLEM

The original resolution which initiated this study referred only to physical education. The first report confined itself for the most part to this phase of our educational program. For the reason that health and physical education programs are closely related and because physical educators are more and more being required to give health instruction, those who criticized the first report insisted on setting up standards for health and physical education, rather than for physical education alone. The term "health and physical education" refers to one division of the school program. This program includes the educative and protective functions. The educative function is accomplished through the physical education activity program and the health teaching program; the protective function through protection from infections, defects, unsanitary environment, unhygienic working conditions, etc.

The National Study Committee has been charged with the responsibility of developing standards with which to evaluate the ability of institutions to prepare professional workers in the field of health and physical education. This problem is complicated by the great variety of professional workers needed in health and physical education and by the difference in fitness of teacher-training institutions to prepare these workers.

Opportunity for leadership or teaching in health and physical education is found most often in the following types of positions:

1. General classroom teacher in the elementary school—woman, man, full-time assignment, part-time assignment.

2. Health and physical education teacher in the elementary school—woman, man, full time, part time.

3. Health and physical education teacher or director in the secondary school [1]—woman, man, full time, part-time assignment in one or more other fields in the secondary school program.

4. Health and physical education teacher or director in the normal school, college, or university—woman, man, full time, part time, exclusive or inclusive of the professional education function.

5. Supervisor of health and physical education—woman, man, full time, part time, elementary, secondary, community, city, county or district, state.

6. School physician, nurse, dentist, or other school health service experts —woman, man, full time, part time, all school levels, different units of geographical service.

7. Specialist in phases of health and physical education—woman, man, full time, part time, all school levels, different units of geographical service.

8. Teacher, supervisor, director, or expert in health and physical education in a social institution other than the school—woman, man, full time, part time, different units of geographical service.

9. A position demanding some combination of the above types.

Throughout the country, the general classroom teacher will in all probability continue to be the person to teach the health and physical education program in the elementary school grades one to six, and in the rural elementary school grades one to eight. Students majoring in health and physical education can, with some additional emphasis on the general elementary program and on the elementary health and physical education program, accept assignment in health and physical education on a part-time or full-time basis in the elementary school. Theoretically, and practically, the man or woman with part-time assignment in health and physical education needs as much preparation in the field as the man or woman who has a full-time assignment. The same types of problems must be met. This is the best argument against a "minor" in physical education or in any field. In the small secondary school where the teacher must teach not only health and physical education but also one or more other fields, he needs adequate preparation in all the fields he must teach. From our point of view, the best temporary solution to this problem is to advise the teacher that he secure as much preparation in health and physical education as he can, and at the same time choose his elective subjects so as to strengthen other teaching fields most closely related to health and physical education. (Example—biological science is closely related while foreign languages and business subjects are remotely related.) In most cases majors in health and physical education who have had successful teaching experience and additional professional preparation will in the future become the teachers or directors in col-

[1] Secondary school defined as including junior high school, high school, and junior college. Physical education defined as including an instructional period program, corrective physical education, intramural and interschool athletic programs, and play days.

leges and universities, and the supervisors in the district, city, county, or state.

The problems involved are too complex for us to determine at this time standards with which to evaluate the ability of institutions to prepare workers for service in each of the generalized types of positions named above. Position type No. 3 (called *Problem A*) has, therefore, been chosen as the first problem to be attacked.

STATEMENT OF PROBLEM "A"

The problem is to determine standards with which to evaluate the ability of institutions to prepare men and women health and physical education teachers or directors for the secondary school. Full-time teaching and part-time teaching in health and physical education, as well as part-time teaching in one or more other fields in the secondary school program, are to be considered.

Organization of Subcommittees.—At a meeting of the National Study Committee held at Cleveland, April 20, 1934, it was decided that six subcommittees, one on each of the six divisions of Problem "A," should be organized. In accordance with this plan, the six National Study Committee members were designated as secretaries of the subcommittees and were authorized to choose the chairmen and the committee members. The function of these committees is to assist in the preparation of standards. Much valuable assistance has been rendered. The personnel of the committees follows:

Committee on Problem A-1

Mr. V. S. Blanchard, Detroit Public Schools, Michigan (*Chairman*)
Mr. Horace Geisel, Harrisburg Public Schools, Pennsylvania
Miss Hazel Rex, Toledo Public Schools, Ohio
Miss Margaret Brown, President, Panzer College, East Orange, N.J.
Mr. W. G. Moorhead, State Department of Public Instruction, Harrisburg, Pennsylvania (*Secretary*)

Committee on Problem A-2

Dr. Floyd Gore, Professor of Education, Oberlin College, Oberlin, Ohio (*Chairman*)
Mr. T. Nelson Metcalf, University of Chicago, Chicago, Illinois
Miss Clare Small, University of Colorado, Boulder, Colorado
Miss Elizabeth Yeend, New York University, New York
Dr. Gertrude Moulton, Oberlin College, Oberlin, Ohio (*Secretary*)

Committee on Problem A-3

Dr. Delbert Oberteuffer, Ohio State University, Ohio (*Chairman*)
Mr. E. B. Cottrell, State Teachers College, Slippery Rock, Pennsylvania
Miss Ida H. Spurrier, Frick Training School, Pittsburgh, Pennsylvania
Miss Elizabeth Rearick, University of Pittsburgh, Pennsylvania
Mr. E. M. Sanders, State Teachers College, Indiana, Pennsylvania (*Secretary*)

Committee on Problem A-4

Dr. Clark W. Hetherington, Stanford University, California (*Chairman*)
Miss Helen McKinstry, Russell Sage College, Troy, New York
Miss Ruth Glassow, University of Wisconsin, Madison, Wisconsin
Dr. Jackson R. Sharman, University of Michigan, Ann Arbor, Michigan
Dr. Ruth Elliott, Wellesley College, Wellesley, Massachusetts
Mr. N. P. Neilson, Stanford University, California (*Secretary*)

Committee on Problem A-5

Dr. Frank Lloyd, New York University, New York (*Chairman*)
Miss Blanche Trilling, University of Wisconsin, Madison, Wisconsin
Dr. Ruth Elliott, Wellesley College, Wellesley, Massachusetts
Mr. William R. LaPorte, University of Southern California, Los Angeles, California
Mr. George B. Affleck, Springfield College, Springfield, Massachusetts, (*Secretary*)

Committee on Problem A-6

Dr. David K. Brace, University of Texas, Austin, Texas (*Chairman*)
Miss Florence Alden, University of Oregon, Eugene, Oregon
Mr. Carl H. Burkhardt, Director of Physical Education in Elementary Schools, Buffalo, New York
Miss Jessie R. Garrison, State Department of Education, Montgomery, Alabama
Dr. W. L. Hughes, Teachers College, Columbia University, New York
Mr. Louis Kulcinski, State Department of Education, Springfield, Illinois
Dr. N. G. Englehardt, Teachers College, Columbia University, New York (*Advisory Member*)
Dr. Jay B. Nash, New York University, Washington Square, New York (*Advisory Member*)
Dr. Harry A. Scott, The Rice Institute, Houston, Texas (*Secretary*)

STANDARDS

In developing standards we should keep in mind two types of service which the institution has to offer: (1) service to the general student body, and (2) the program of professional education of teachers. These services are related because of the joint use of facilities, faculty members, and certain physical education activity courses.

Problem "A-1"—Basic Characteristics of Secondary School Program

Teacher-training institutions professing to prepare health and physical education teachers and directors for the secondary schools should be familiar with the programs which are taught and which should be taught in these schools to meet the health and physical education needs of pupils. The common and basic characteristics of an adequate health and physical education program in the secondary school are:

1. Every pupil enrolled in a secondary school should participate daily in a health and physical education program.

2. The length of instructional periods should range from forty to sixty minutes.

3. The health and physical education program should be adapted to the needs, capacities, and interests of pupils.

4. An educative and protective program in health and physical education should be provided.

5. The physical education program should provide a large variety of activities.

6. Emphasis on the class period, intramural, interschool, and play-day programs in physical education should be well balanced.

7. In the secondary school, considerable emphasis should be placed on physical education activities which may be used by adolescents and adults as leisure-time activities.

8. Cumulative records of pupils' health conditions, behavior, and attainments in the health and physical education program should be kept and used to the advantage of the pupil.

9. The school should make a sincere effort to secure the correction of remediable defects found through examination of pupils.

10. Achievement tests should be given to diagnose, motivate, and measure the improvement in pupil development.

11. The health and physical education program should be conducted by competent leaders.

12. Competent overhead supervision of health and physical education programs should be established and maintained.

13. Adequate facilities, equipment, and supplies should be available for the health and physical education program.

Problem "A-2"—General Standards

Institutions preparing health and physical education teachers and directors for secondary schools should meet the following general standards:

1. The institution is an accredited member of a recognized association of higher educational institutions.

2. The institution is listed by the state department of education as approved for the training of health and physical education teachers for secondary schools.

3. The institution has established an organized curriculum of professional education in health and physical education.

4. The institution requires a minimum of four years for completion of preparation for teaching in the secondary school.

5. The institution has an efficient student health service program.

6. Recreational programs including physical education activities are conducted at the institution.

Problem "A-3"—Standards for the Selection of Students to be Trained

Institutions or departments should admit to the professional education curriculum in health and physical education only those student candidates who:

1. Have graduated from a four-year course (or the equivalent as shown by examination) in a secondary school accredited by the state department of education in the state in which the school is located.
2. Have an intelligence quotient of one hundred or more on a standard intelligence test.
3. Have had a health examination upon entrance into the professional education curriculum, the results of which show no impairments likely to affect adversely the future success of the applicant as a teacher of health and physical education.
4. Present evidence of a satisfactory oral and written command of the English language as determined by any standard tests which the institution may apply.
5. Demonstrates or presents evidence of satisfactory skill in motor activities at the time of entrance to the professional education curriculum.

Problem "A-4"—Course Standards[2]

In determining the courses which should go into a professional education curriculum in health and physical education, at least four different approaches are possible: (1) the historical approach, which means a study of the rise of professional education as related to social conditions or needs; (2) the comparative method, or study of curricula in operation at the time, not in the sense of merely accepting what is being done, but in the sense of making a critical analysis of what is being done in the various schools; (3) job analysis. By job analysis we mean constructing the kind of professional education curriculum that will prepare for the service to be performed on the job. The job analysis, of necessity, must consider what has gone on in the past and what is going on at the present time; and (4) the constructive job analysis, which requires a higher criticism of the job analysis. While a job analysis may reveal the duties being performed, it does not in itself reveal whether the duties should be performed and whether legitimate functions are being neglected. Hence the job must be defined in terms of functions and then the training organized according to the functions and the competence required.

The basis for a constructive treatment of the job in terms of functions, as compared with the functions of other teaching and educational

[2] We are indebted to Dr. Clark W. Hetherington, Stanford University, for the constructive job-analysis method and for the conception of the standard seven-year curriculum.

jobs, is found in the content of the educational sciences and foundation sciences. Every science is concerned with problems. Thus a science is defined by a statement of the problem situations with which it deals. An inductive study of the problem situations in education attacked from every point of view, both in their great detail and complex inter-relationships, has shown that all the problems of education may be classified under eight general groups, or nine when the profession is included. Thus stated, they are the sciences of education or of physical education. They are: (1) Interpretations; (2) Objectives; (3) Social or Institutional Organization and Auspices; (4) Educability, Classification, and Testing of People; (5) Program (Educative and Protective); (6) Leadership or Teaching and Methods; (7) Administration; (8) History; and (9) the Profession. The study and acquisition of knowledge about the problem content in these education sciences with special reference to health and physical education depend for their thoroughness upon the knowledge of a series of foundation sciences. These are: (1) Biology, (2) Chemistry, (3) Physics, (4) Anatomy, (5) Physiology, (6) Psychology, (7) Sociology, and (8) Hygiene.

The functions of any group of teachers may be analyzed under the headings of the common, distinctive, and supreme functions. By a detailed analysis it is found that the health and physical education teacher is responsible for at least five programs, stated as follows:

1. To lead pupils in activity programs to achieve pupil development and adjustment according to standards.

2. To lead the program in character education associated with the activities.

3. To teach health (or hygiene) through health practices or "training" and formally in class as "informational hygiene."

4. To conduct a program in accident prevention.

5. To organize and insure the success of the health protection program.

The professional education required for the functions that define the job is determined by the knowledge and skills necessary to give competence to perform the functions. This professional education must be organized in terms of courses and a curriculum. But in order to determine the curriculum, four groups of studies are necessary: (1) a study of the university organization as it influences the organization of professional education; (2) the definition of trained competence for the functions of the health and physical educator; (3) a study of the knowledge and skill content of the education sciences and foundation sciences and the selection under each of one or more courses with a content for a curriculum; (4) the organization of the courses as a curriculum according to university requirements.

Completion of these four studies results in the following scientifically constructed seven-year curriculum of professional education in health

and physical education. Courses marked with an asterisk (*) are included in the standard four-year curriculum and should, with the addition of Practice Teaching, Interpretation of the Health Examination, and Teaching Health, be required by the institution for recommendation for state credentials (issued on four-year basis) to teach health and physical education in the secondary schools. The courses are listed under the generalized problems of education and the *mimimum amount* of each course is stated in semester units. One semester unit is defined as follows: (*a*) one clock hour (not less than fifty minutes) class work and two clock hours outside preparation each week for a semester (not less than sixteen weeks); or (*b*) three clock hours of laboratory work each week for a semester; or (*c*) five clock hours of physical education activity, exclusive of dressing time, each week for a semester. Two semester units are equal to three quarter units.

Seven-Year Curriculum

(Arranged under a four-group classification)

A. Academic Courses Required by the Institution (other than foundation sciences):

These courses vary with institutions and so cannot be named in these standards. The requirement includes such courses as: English, history, foreign languages, mathematics, etc.

B. Foundation Sciences Required (including academic requirements in science):

* Biology (general) (6)
* Chemistry (6)
Physics (Recommended as elective)
* Anatomy (Human) (3)
* Physiology (Human) (6)
* Psychology (general) (3)
* Sociology (general) (3)
* Hygiene (6)

C. Courses in General Education Required:

Courses required vary with institutions and with state credential requirements and so cannot be named here. The following courses are typical of those being required:

* Introduction to Education (2)
* History of Education (3)
* Educational Psychology (3)
* Educational Sociology (3)
* Introduction to Statistical Methods (3)
* Elementary Education (general course) (3)
* Secondary Education (general course) (3)
Introduction to Thesis (1) (To be taken early in the fifth year by candidates for Master's degree.)

D. Courses in Health and Physical Education required:
(Courses listed under generalized problems)

Problems of Interpretation and Objectives:
* Interpretation and Objectives (3)
* Nature and Function of Play (2)

Problems of Educability, Classification, and Testing of People:
* Normal Growth and Development (3)
* Physical Education Tests (2)
* Interpretation of the Health Examination (2)
Divergencies in Growth and Development (2)
Organic Differences and Tests (4)

Problems of the Program:
* Mechanical Analysis of Activities (2)
* Mechanical-Anatomical Analysis of Activities (2)
* Physiology of Activity (2)
Adaptation of Activities to Divergent Cases (2)
Construction of Health Teaching Program (2)
Construction of Health Protection Program (2)
Physiological Analysis of Activities (4)
Psychological Analysis of Activities (2)
Construction of Character Education Program (2)
Adaptation and Evaluation of Activities (3)

Problems of Leadership:
* Physical Education Activities (Personal Skills) (6)
Advanced Specialization in Physical Education Activities (no credit)
* Special Methods of Teaching Physical Education Activities (7)
* Leadership Organization of Physical Education Activities (2)
* Leadership in Protective Procedures (2)
Principles of Leadership (2)
* Teaching Health (2)
* Practice Teaching (4)
Activities of Little Children } (3)
Activities of Late Pre-Adolescent Children }
Character Education Through Physical Education (2)
Supervision of Teachers of Health and Physical Education (2)
Supervision of Health Protection (2)

Problems of Administration:
* Administration of Physical Education (3)
Administration of Health Protection (2)
Administration of Community Recreation (3)

Problems of History:
History of Physical Education (2)
History of Hygiene (2)

Problems of the Profession:
Professional Education in Physical Education (3)

General Courses and Individual Study:
* Introduction to Physical Education (2)
Problems of Physical Education (3)

Individual Research and Study
Master's Thesis
Thesis Seminar (no credit)
Doctor's Thesis

Brief Descriptions of Courses in Health and Physical Education.—

Interpretation and Objectives.—An analysis of the results and values of physical education activities under leadership in terms of development, adjustment, and standards and their relationships as objectives.

Nature and Function of Play.—A study of the play activities of childhood and youth; a classification of the activities; general analysis of the mental processes in the activities and of the functions of the activities; a critical study of the theory of play.

Normal Growth and Development.—A study of the laws of normal growth and development of the child. Special emphasis on the age characteristics with sex and individual differences.

Physical Education Tests.—A study and evaluation of achievement tests in physical education; methods of constructing achievement tests; relationships of capacity, ability, and achievement.

Interpretation of the Health Examination.—A study of the techniques, meanings, and purposes of the health examination.

Divergencies in Growth and Development.—A study of the structural and functional deficiencies and defects, and of the susceptibilities to injury and disease characteristic of childhood that handicap normal growth and development.

Organic Differences and Tests.—A laboratory research course on the physiological differences in ability between people in activities, and tests of the ability.

Mechanical Analysis of Activities.—An analysis of the techniques or mechanics of the movements in the classified groups of physical education activities; an analysis of the teaching explanations of how to make movements or coordinations; an analysis of skills; a study of the nomenclatures used and the formulation of a working nomenclature for all the activities.

Mechanical-Anatomical Analysis of Activities.—An anatomical analysis of the effects of the mechanics of different physical education activities with special reference to posture.

Physiology of Activity.—A general course on the physiological effects of physical education activities.

Adaptation of Activities to Divergent Cases.—Techniques of corrective exercises; a practical course designed to prepare the physical education instructor to deal with corrective cases.

Construction of Health Teaching Program.—The construction of an organization of health habits, interests, and knowledge adapted to age periods in a form for use by the teacher.

Construction of Health Protection Program.—The construction of a program of procedures in the control of each of the several groups of health hazards; organized by school grade levels and for use by different school officials.

Physiological Analysis of Activities.—A laboratory experimental research course in the analysis of the physiological effects of different physical education activities on different individuals. This course is closely associated with the course on Organic Differences and Tests.

Psychological Analysis of Activities.—A detailed analysis of the mental processes during participation in classified groups of physical education activities; comparison with other groups of activities.

Construction of Character Education Program.—The construction of the character education program based on the psychological analysis of the activities, the analysis of conduct situations that arise in the activities, and the leadership procedures in dealing with the conduct situations.

Adaptation and Evaluation of Activities.—A study of the laws of adaptation; the scientific procedures in adapting activities to the structural-functional traits of different age periods and to individual differences. The formulation of criteria for the scientific evaluation of activities and the evaluation of the different groups of adapted activities. Procedures in the organization of a scientific activity program.

Physical Education Activities (Personal Skills).—Note: By means of achievement tests candidates should be required to demonstrate that they possess a fair degree of skill in the various activities included in a standard secondary school physical education program. A maximum of six semester units of credit should be required of candidates in the activities in which they fail to pass the tests. Institutions should provide activity courses to accomplish this purpose.

Advanced Specialization in Physical Education Activities.—Provision should be made for students who wish to specialize in certain activities. No university credit should be allowed for such courses.

Special Methods of Teaching Physical Education Activities.—

For Men: Methods in Team Games (Methods in Baseball), (Methods in Basketball), (Methods in Football), (Methods in Track and Field), (Methods in Soccer, Rugby, Speedball, and Volleyball); Methods in Single and Dual Sports; Methods in Self-Testing Activities; Methods in Rhythmical Activities; Methods in Swimming; Methods in Personal Combative Activities; Methods in Gymnastic Drills.

For Women: Methods in Rhythmical Activities; Methods in Self-Testing Activities; Methods in Swimming; Methods in Single and Dual Sports; Methods in Team Sports (Methods in Hockey, Soccer, and Speedball) (Methods in Basketball, Playground Baseball, and Volleyball); Methods in Gymnastic Drills.

Leadership Organization of Physical Education Activities.—A course dealing with the principles in the correlation of all the special methods courses in activities applied to the capacities and needs of different age groups with their sex and individual differences.

Leadership in Protective Procedures.—Prevention and emergency care of injuries of all types, but with special reference to first aid, bandaging, and massage. A practical course for the advanced student in health and physical education involving experience under instruction, and emphasizing the hazards of non-medical responsibility.

Principles of Leadership.—A study of direct-contact leadership; analysis and classification of the procedures used in influencing individuals and in the development of traits; the procedures in different programs.

Teaching Health.—A detailed study of the principles involved in the teaching of health at different age levels.

Practice Teaching.—This course includes observation of teaching and supervised practice teaching on the secondary school level in physical education activities and in health teaching.

Activities of Little Children.—Learning the activities and the methods of leadership of the activities adapted to little children.

Activities of Late Pre-Adolescent Children.—Learning the activities and the methods of leadership of the activities adapted to children in the late pre-adolescent years.

Character Education through Physical Education.—An application of the principles of leadership to the particular problems in the program of character education in general, but with special reference to the character-training situations that arise in physical education activities.

Supervision of Teachers of Health and Physical Education.—A study of the procedures used by the supervisor in the direction of teachers of health and physical education.

Supervision of Health Protection.—A study of the procedures used by the supervisor in the direction of physicians, nurses, teachers, and other school officials in their health protection functions.

Administration of Physical Education.—An introductory course dealing with problems in the administration of physical education in all institutions supporting physical education. It includes the administration of health teaching.

Administration of Health Protection.—Administration of accident prevention; administration of the control of health handicapping influences such as growth defects, communicable diseases, hygiene of environment, and hygiene of instruction.

Administration of Community Recreation.—The administrative organization of public recreation; administration of the social organization of recreation as an establishment; administration of functions.

History of Physical Education.—(Note: Undergraduate material to be given in connection with "History of Education.") A study of the past struggles of man to solve the problems in the eight sciences of physical education.

History of Hygiene.—The evolution of hygiene from the primitive through medieval to the modern period, providing a background for the interpretation of modern ideas and source of materials for teaching hygiene.

Professional Education in Physical Education.—A study of the research approaches in the investigation of professional education; an analysis of the functions of the physical educator; the professional education required for competence in the functions; problems in the organization of curricula in professional education.

Introduction to Physical Education.—An orientation course presenting in elementary form the problems of physical education.

Problems of Physical Education.—An intensive review of the problem

content of the sciences of education with special reference to physical education. The sciences are classified under nine general headings with subdivisions. A course for graduate students to give the problem content and the relationships between the problems and the education sciences, and the relationships of these to the foundation sciences as the basis for the selection and study of a thesis problem; a consideration of the methodology in connection with each group of problems.

Individual Research and Study.—Open to students whose preparation for the special problem selected has been approved and accepted by the staff member under whom the work is to be carried on.

Four-Year Standard Undergraduate Curriculum

(Note: Academic requirements in the first two years and electives are not included; year placement determined by logical sequence of courses.)

Year	Course Names—Semester Units in Parentheses
I	Biology (6)
	Hygiene (3)
	Chemistry (6)
	Introduction to Physical Education (2)
	Physical Education Activities (Personal Skills) (1½)
II	Anatomy (3)
	Physiology (6)
	Hygiene (3)
	Introduction to Education (Suggested) (2)
	Physical Education Activities (Personal Skills) (1½)
III	Psychology (3)
	Sociology (3)
	History of Education (Suggested) (3)
	Elementary Education (Suggested) (3)
	Educational Psychology (Suggested) (3)
	Educational Sociology (Suggested) (3)
	Mechanical Analysis of Activities (2)
	Mechanical-Anatomical Analysis of Activities (2)
	Special Methods of Teaching Physical Education Activities (4)
	Physical Education Activities (Personal Skills) (1½)
IV	Introduction to Statistical Methods (Suggested) (3)
	Secondary Education (Suggested) (3)
	Nature and Function of Play (2)
	Interpretation and Objectives (3)
	Normal Growth and Development (3)
	Physical Education Tests (2)
	Physiology of Activity (2)
	Leadership in Protective Procedures (2)
	Leadership Organization of Physical Education Activities (2)
	Administration of Physical Education (3)
	Special Methods of Teaching Physical Education Activities (3)
	Physical Education Activities (Personal Skills) (1½)

Three-Year Standard Graduate Curriculum

(Note: Advanced courses in the foundation sciences necessary to specialization or research are not included; graduate courses in general education required for degrees are not included; courses marked with an asterisk (*) should be included in the undergraduate curriculum if the first credential to teach is granted at the baccalaureate level, and in this case undergraduate courses must be reduced in amount or some of them eliminated; courses marked with a dagger (†) may be listed as electives.)

Year	Course Names—Semester Units in Parentheses
V	*Interpretation of the Health Examination (2)
	Divergencies in Growth and Development (2)
	Adaptation of Activities to Divergent Cases (2)
	Principles of Leadership (2)
	*Teaching Health (2)
	†Activities of Little Children } (3)
	†Activities of Late Pre-adolescent Children }
	*Practice Teaching (4)
	Problems of Physical Education (3)
	Introduction to Thesis (1)
	Master's Thesis
VI	†History of Physical Education (2)
	Construction of Health Teaching Program (2)
	†Construction of Health Protection Program (2)
	Physiological Analysis of Activities (4)
	Psychological Analysis of Activities (2)
	Character Education Through Physical Education (2)
	†Supervision of Teachers of Health and Physical Education (2)
	†Supervision of Health Protection (2)
	†Administration of Health Protection (2)
	†Individual Research and Study
VII	†History of Hygiene (2)
	Organic Differences and Tests (4)
	Construction of Character Education Program (2)
	Adaptation and Evaluation of Activities (3)
	†Administration of Community Recreation (3)
	†Professional Education in Physical Education (3)
	Doctor's Thesis

Problem "A-5"—Standards for Staff

The quality of professional education in health and physical education offered by an institution depends to a large extent upon the quality of the staff employed. The standards are:

1. The institution has employed at least five full-time instructors giving one or more professional education courses in the Health and Physical Education Sciences.

2. All members of the staff giving one or more professional education courses in the Health and Physical Education Sciences have either a Baccalaureate, Master's, or Doctor's degree.

3. The titles, assistant professor, associate professor, or professor, are included in the ranking of staff members giving professional education courses.

4. All full-time staff members giving one or more courses in professional education in health and physical education should have one or more years of training or teaching experience in some institution of collegiate grade other than the one in which they are employed.

5. The teacher or teachers in charge of special methods courses and practice teaching in health and physical education should have had at least one year of technical experience in an elementary or secondary school.

6. Staff members have made worth-while contributions to the profession (in addition to teaching) evidenced by research, lectures, publications, papers, radio talks, committee service, and membership in local, state, and national professional organizations.

7. The weekly teaching load for staff members teaching courses in health and physical education should not exceed twenty scheduled class hours of activity courses, sixteen scheduled class hours of undergraduate, or twelve scheduled class hours of graduate health and physical education science courses.

Problem "A-6"—Standards for Facilities

The need for facilities, equipment, and supplies is related to the number of students enrolled and the nature of the program offered in the institution. The standards are:

1. The institution should have the facilities, equipment, and supplies that are necessary to conduct an efficient student health service program.

2. There should be a sufficient number of well designed and well equipped classrooms for instructional use in the health and physical education program.

3. There should be adequate lecture and laboratory facilities for the work in the foundation sciences.

4. In addition to the above, the institution should have the necessary indoor and outdoor facilities, equipment, and supplies for the following programs: (*a*) the health and physical education program required or provided for the general student body; (*b*) the professional education program in health and physical education; and (*c*) the voluntary recreation, intramural athletic, and intercollegiate athletic programs. The indoor facilities should include clubrooms, kitchens or kitchenettes, restrooms, instructors' offices, supply-rooms, store- and storage-rooms, instructors' dressing- and shower-rooms, drying-rooms,

main gymnasium floors, special-activity rooms, dance studios, handball courts, dressing-rooms, lockers, shower-rooms, toilets, and swimming pools. Outdoor facilities should include basketball courts, handball courts, tennis courts, quoitennis courts, volleyball courts, playground baseball diamonds, baseball diamonds, football fields, tracks, hockey fields, soccer fields, speedball fields, archery lanes, croquet courts, horseshoe courts, golf-driving cages, golf-putting greens, and golf courses.

5. The library of the institution should contain an adequate quantity of well selected books, magazines, and other study materials in the field of health and physical education and in related fields.

(Note: Detailed standards for facilities as determined by Subcommittee A-6 may be found in the RESEARCH QUARTERLY, Vol. VI, No. 3 (October, 1935) pp. 122–139.)

These standards should serve as a guide in the development of programs of professional education in health and physical education. It is hoped that members of the profession will continue their efforts to improve and perfect the standards. Many scientific studies are needed and especially in connection with the development of details under each of the generalized standards. Continued study will perhaps eliminate some of these standards and add others. It seems better to begin with something even though we may disagree than not to begin at all. The standards will be improved through the experience gained in their interpretation and application.

THE NATIONAL RATING COMMITTEE

The National Study Committee at its 1934 meeting in Cleveland, Ohio, authorized the formation of a subcommittee to be known as the National Rating Committee. It was suggested that different sections of the United States and a variety of educational positions be represented on the Committee. Soon after the Cleveland meeting each member of the National Study Committee submitted a list of fifteen names of persons who they thought should be invited to serve on the National Rating Committee. Three additional persons, namely, Dr. W. W. Patty, of Indiana University, Dr. Ruth Elliott, of Wellesley College, and Dr. A. J. Stoddard, Superintendent of Schools, Providence, Rhode Island, were invited to submit a list of fifteen names for the Committee. After a study of all the names submitted, the chairman prepared a list of thirty names which he sent along with the complete list (seventy-three names) to the National Study Committee members and requested their final choice of fifteen names. These choices were then tabulated and invitations sent to those who received the most votes. While at the 1935 convention of the American Physical Education Association held at Pittsburgh, Pennsylvania, the National Study Committee designated two of its members to serve as members of the National Rating Committee in order to coordinate the work of the two committees. The Rating Committee held

three meetings at Pittsburgh, chose a chairman, and named five additional persons to be invited to become members of the committee.

Plans call for a National Rating Committee of twenty-five members. To date acceptances have been received from the following:

Mr. T. Wingate Andrews, Superintendent of Schools, High Point, North Carolina
Dr. John Bovard, University of Oregon, Eugene, Oregon
Dr. David K. Brace, University of Texas, Austin, Texas
Dr. William H. Burdick, State Director of Physical Education, Baltimore, Maryland
Dr. Ruth Elliott, Wellesley College, Wellesley, Massachusetts
Miss Jessie R. Garrison, State Director of Health and Physical Education, Montgomery, Alabama
Mr. Strong Hinman, Director of Physical Education, Public Schools, Wichita, Kansas
Miss Mabel Lee, University of Nebraska, Lincoln, Nebraska
Miss Violet Marshall, University of California, Berkeley, California
Dr. James H. McCurdy, Springfield College, Springfield, Massachusetts
Dr. Gertrude Moulton, Oberlin College, Oberlin, Ohio
Dr. Jay B. Nash, New York University, New York
Dr. Willard W. Patty, Indiana University, Bloomington, Indiana
Mr. James E. Rogers, National Recreation Association, New York City
Dr. James F. Rogers, United States Office of Education, Washington, D.C.
Dr. A. J. Stoddard, Superintendent of Schools, Providence, Rhode Island
Miss Clare Small, University of Colorado, Boulder, Colorado
Mr. Alden W. Thompson, Director of Health Education and City Recreation, Grand Rapids, Michigan
Miss Blanche Trilling, University of Wisconsin, Madison, Wisconsin
Dr. Jesse F. Williams, Teachers College, Columbia University, New York
Mr. N. P. Neilson, Stanford University, California (*Chairman*)

It is the function of the National Rating Committee to receive applications from institutions for ratings, evaluate professional education programs in health and physical education in the institutions which apply for ratings, and give formal approval to institutions meeting the standards for placement on an approved list. Lists of approved institutions that have four-year programs, five-year programs, and seven-year programs for the professional education of men and women health and physical education teachers and directors for secondary schools will be published. Details of procedure related to the problem of rating institutions will be determined by the National Rating Committee in the near future.

A Study of Personality of College Students of Physical Education

By Margaret C. Brown
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INTRODUCTION

THE EDUCATION of teachers of physical education is a complex problem. The student teacher must acquire the knowledge, skills, techniques, attitudes, and experiences which are necessary for effective teaching. Yet the mastery of these abilities does not necessarily produce the superior teacher. In general, elements of weakness seem to center around fundamental characteristics of personality. In supervision of practice teaching, the diagnosis of weak teaching on the basis of professional qualifications may be impersonal and technically correct. It seems even more important, however, to analyze the personality of the student to discover the human elements that color the quality of teaching. At one time considerable confidence was placed in the use of estimates of personality traits. This practice has been largely abandoned in favor of the more nearly scientific personnel methods for the study of personality.[1]*

THE PROBLEM OF PERSONALITY

The subject of personality has always been a challenging problem. Centuries ago, Hippocrates classified people according to his theory of temperaments. At the beginning of the nineteenth century Gall tried to explain personality by phrenology. Today the study of personality delves deeply into the science of heredity, environment, endocrinology, psychology, and sociology.

In his experiments with animals, Cannon contributed considerable data to our knowledge of the emotions and to the bodily changes which occur in strong emotional states.[2] Berman goes further into the study of the relation between the function of the endocrine glands and personality. He attempts to classify types of personality according to the normal or abnormal action of the ductless glands.[3] From clinical study of morphological characteristics, Kretschmer developed three types of physiques, the asthenic, athletic, and pyknic with possible combinations. His psychiatric research with these types leads to the definition of two types of personalities with characteristic temperaments, the cyclothymes and schizothymes. These are "but inclusive terms for large bio-types

* Numbers refer to bibliography at end of article.

which include the great mass of healthy individuals with the few corresponding psychotics among them."[4]

Passing from the biological studies of personality to the study of behavior, there are many conflicting psychologies. About 1880 Wundt worked out his psychology of the emotions.[5] After the researches of Wundt, structural psychology gave way to a more objective, dynamic psychology. Jung classifies personalities in accordance with his psychological types, the introverts and extroverts. "A type is thus a habitual attitude in which one mechanism permanently dominates."[6] Thorndike explains acts of behavior as reaction to stimulus. Organic wants as well as social wants are stimuli. Their completion is conditioned by satisfaction and annoyance.[7] Watson begins studies of behavior with the simple reflexes and proceeds to the complex responses. Thus "personality is but the end product of our habit systems."[8] But personality is dynamic. To quote Brown, "Personality and individuality are different. Personality is achieved by contact with the universe. The universe means life. It is always moving. The individual becomes a personality when he comes in contact with the ever-moving universe. He is drawn out toward universality, unity." "So that we can regard personality as a process but not a product for it is never completely produced."[9]

Allport states that "personality lies within the individual but is evoked in relation to others." Thus the personality is developed in relation to environment through acquired "habit systems." These include "drives and trends of habit, reactions toward self and others, compensations and provisions for peculiarities of endowment, socialization and character."[10] According to Strecker, "Personality might be explained as the psychic endowment that comes to the child as a result of the interchange between it and environment."[11] The influence of Gestalt psychology has resulted in a new approach to the study of personality. This is the study of man, not in elemental parts, but as a dynamic whole. Response or behavior is due to an inner need to "bridge the gap" toward some goal and restore equilibrium by means of sense perception or by means of reason.[12]

It was from the tenets of Gestalt psychology that Spranger developed his *Geisteswissenschaftliche* psychology of culture. Spranger maintains that the study of man from the biological and genetic sciences is common. Instincts and original tendencies have also been used as a basis for classifying individuals. But man lives in a cultural as well as a natural environment. His personality depends on cultural forces of environment as well as on his control of natural forces.[13] Spranger reasons that "a culture or historically given mental life" is composed of a number of spheres such as "pure and applied science, economics, art, morality, religion, society, politics, law and education."[14] Each region may also be called a value. Individual mental life emphasizes certain cultural values more than others, for "every field of mental activity, in

so far as it becomes the object of actual endeavour, is dominated by a specific attitude of evaluation."[15] The relative dominance of the evaluative attitudes toward these cultural spheres forms the personality of the individual. So "types of men are best studied in accordance with the relative dominance of their evaluative attitudes"[16] toward six basic cultural spheres of civilization, the theoretical, economic, aesthetic, social, political, and religious. Spranger does not claim there is a pure one-sided type of personality. Just as regions of culture are interrelated, so are the evaluative attitudes of the individual toward them. "The ratio of each attitude depends on the area of experience of the individual. At times one or more fields of value may become dominant, thereby overshadowing the remaining relatively recessive values."[17]

These types of personalities are described briefly in the Manual of Directions of the Allport and Vernon *Study of Values.*

The Theoretical Attitude.—"The dominant interest of the theoretical man is the discovery of truth." He is not influenced by feelings and emotions or by judgments concerning the utility of objects, but seeks only to observe and reason. He is necessarily an intellectualist, frequently a scientist or philosopher.

The Economic Attitude.—"The economic man is characteristically interested in what is useful." This idea of practicability is carried into business, industry, psychology, and even art.

The Aesthetic Attitude.—"The aesthetic man sees his highest value in form and harmony. Each single experience is judged from the standpoint of grace, symmetry, fitness." He enjoys what is beautiful and artistic for its own sake. The appreciations of the many experiences of life are more desirable than their truth, their use, or their interpretation.

The Social Attitude.—"The highest value for this type is love of people, whether conjugal, filial, friendly or philanthropic." This type has highly developed social qualities such as kindness, sympathy, and unselfishness.

The Political Attitude.—"The political man is interested in power." He is a leader and has a "high power value" in the competition and struggle of life. Such personalities value personal power, influence, and renown to a high degree.

It is significant for this study that Spranger considers people interested in physical education as political types. He states:

> "Indeed sport has now become almost a separate region of culture which might have its own typical attitude. Nevertheless, I have not developed it as such because the sphere lies on the borderline where the region of power and the aesthetic sphere of play partly touch and partly overlap. Sport is a divergence from the political instinct into an imaginatively determined form of play as demanded by a peaceful, industrialized, democratic community."[18]

The Religious Attitude.—"The highest value of the religious man

may be called unity." In the mysticism of religious experiences he creates his values of life. Some mystics create this value in their daily work, others in religious experiences, and others in their withdrawal from the world.

THE PRESENT STUDY

The purpose of this study was to discover the dominant attitudes motivating the personality of college students of physical education. The study was undertaken for three reasons:

1. To discover the dominant attitudes of the students toward the six cultural fields characterized by Spranger.

2. To secure information that might give some redirection to the teacher-training program.

3. To find data that might serve as a guide in understanding the personality of individual students.

In an attempt to measure the dominant interests in personality as described by Spranger, Allport and Vernon constructed their scale known as *A Study of Values*. According to the Manual of Directions the scale is arranged in two parts, and consists of "120 answers, 20 of which refer to each of the six values." In Part I there are two alternative answers to each question, and in Part II there are four. The preference in the answer is indicated numerically. Thus the subject makes a choice which indicates his attitude toward the cultural value inherent in the question. Consequently, a dominant preference for one basic value means a less dominant preference for one or more of the remaining values. The scale is self-administering and self-scoring. It takes about thirty minutes to give.

The *Study of Values* was standardized on 2,755 cases, found by averaging male and female norms.[19] The mean score for each value is 30. The profile of values given on the score sheet indicates that scores higher than 37 and lower than 24 are probably significant in this study of personality. In the Manual of Directions the authors report a reliability of +.72 and +.82 for the test. They found a convincing validation from a study of the mean scores of groups whose characteristics were known. The social value is admitted to be least satisfactory.

This test was taken by 308 college seniors enrolled in a physical education curriculum. The group was composed of 160 men and 148 women studying in eleven colleges and universities engaged in the preparation of teachers of physical education. The cooperating institutions were: New York University, Temple University, William and Mary College, Russell Sage College, Pennsylvania State College, Arnold College, Ithaca College, East Stroudsburg State Teachers' College, Trenton State Teachers' College, Cortland State Teachers' College, and Panzer College. The order in which these appear in Table I is not the order in which they are presented here.

FINDINGS OF THE STUDY

Table I presents data showing the variation in the prominent attitudes of the students of the respective institutions. In a similar study with students of liberal arts, Cantril and Allport leave it a moot question as to whether institutions "attract or create" such interests.[20]

The facts presented indicate that the political values of the men students are, without exception, above the standardized mean. In practically all institutions the men also have higher scores in theoretical and economic attitudes than the women. In religious and aesthetic values the women are generally stronger than the men. The low aesthetic values of men students are consistent. In almost all cases there is quite a difference between the dominant value of the men students and the low aesthetic value.

In Table II the mean scores of the men and women are tabulated. Men students have a strong political attitude. Their mean scores in theoretical, economic, and social attitudes are also above the norm. The aesthetic attitude is significantly low.

The mean scores of the women students are quite close to the standardized mean in each value.

In comparing the sexes, it can be seen that the men are stronger than the women in theoretical, economic, social, and political values. The women are stronger in aesthetic and religious values.

The average mean scores of the whole group of 308 men and women deviate only a few points from the mean in each value with the exception of the aesthetic attitude.

Table III presents a comparison of the mean scores of 308 physical education students and 776 unselected college students and adults reported by Cantril and Allport.[21] The men students of physical education are stronger in political and social values and much lower in the aesthetic value than the men of the unselected group. There is but little difference in theoretical, economic, and religious interests.

The mean scores of the two groups of women students are quite close in each value. The physical education students are slightly stronger in theoretical and political attitudes. The unselected group has a much stronger aesthetic attitude.

It is noted again that the men of both groups have higher scores in theoretical, economic, and political attitudes than the women, while the women are stronger than the men in aesthetic and religious attitudes. The social value is highest in the case of the men students of physical education.

CONCLUSIONS

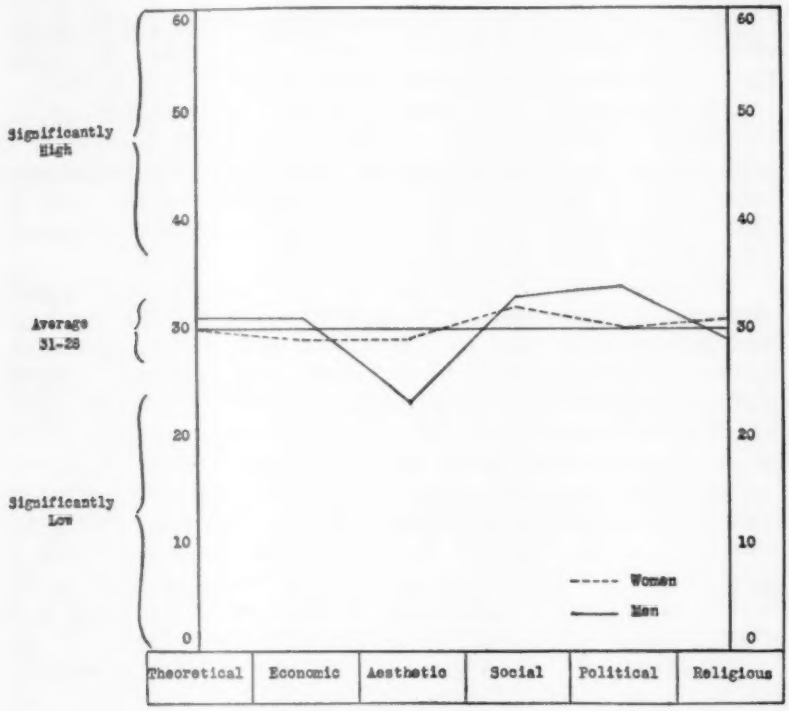
The relative prominence of the theoretical, economic, and political values for men students of physical education, and the aesthetic and religious values for women seems to lend support to similar findings reported by Cantril and Allport concerning sex differences.[22] These

TABLE I
MEAN SCORES OF 308 COLLEGE STUDENTS OF PHYSICAL EDUCATION

Institution	Number		Theoretical		Economic		Aesthetic		Social		Political		Religious	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
A	0	8	...	28.00	...	30.00	...	30.75	...	*34.50*	...	25.75	...	30.50
B	19	20	33.19	29.30	29.50	29.00	22.51	29.30	32.63	30.35	*33.58*	30.80	29.17	*31.70*
C	47	19	30.99	27.66	32.25	29.66	21.14	27.56	31.42	31.02	*35.62*	28.44	28.86	*35.34*
D	23	11	26.50	26.86	32.67	30.50	23.28	28.50	32.59	*32.13*	*33.89*	31.04	31.54	31.22
E	9	20	31.94	31.90	31.39	27.30	22.38	31.00	*36.27*	*35.50*	32.72	28.20	24.95	26.30
F	18	10	31.05	*31.90*	30.95	31.10	22.61	25.00	33.94	31.80	*34.27*	31.50	26.50	29.10
G	12	0	29.50	...	28.17	...	24.50	...	33.00	...	*35.83*	...	29.66	...
H	0	19	...	*32.60*	...	27.55	...	31.55	...	31.65	...	26.50	...	31.13
I	21	26	31.92	28.04	31.07	28.04	21.52	31.04	*33.73*	30.27	31.16	*31.73*	30.11	30.96
J	7	11	*34.92*	30.04	32.36	27.50	23.75	30.50	28.78	31.22	33.35	28.13	27.93	*33.04*
K	4	4	31.00	29.50	*32.00*	30.00	24.00	26.50	31.00	30.00	31.50	*35.50*	30.00	26.50

TABLE II
MEAN SCORES FOR EACH BASIC VALUE OF 308 COLLEGE STUDENTS MAJORING IN PHYSICAL EDUCATION

N	Sex	Theoretical	Economic	Aesthetic	Social	Political	Religious
160	Male	31.22	31.15	22.86	32.58	33.55	28.76
148	Female	29.58	29.06	29.17	31.84	29.76	30.58
308	Both	30.40	30.10	26.01	32.21	31.66	29.67



PROFILE OF VALUES
Comparison of Mean Scores of Men and Women Students of Physical Education

TABLE III

COMPARISON OF MEAN SCORES OF COLLEGE STUDENTS OF PHYSICAL EDUCATION WITH MEAN SCORES OF UNSELECTED COLLEGE STUDENTS AND ADULTS

N	Sex	Students	Theo-retical	Eco-nomic	Aes-thetic	Social	Politi-cal	Reli-gious
463	Male	College students and adults (unselected)	31.49	31.28	27.61	29.68	31.88	28.07
160	Male	College students of physical education	31.22	31.15	22.86	32.58	33.55	28.76
313	Female	College students and adults (unselected)	28.04	28.72	32.47	31.42	28.00	31.37
148	Female	College students of physical education	29.58	29.06	29.17	31.84	29.76	30.58

authors also include the social value as characteristically stronger in the personalities of women. In this study the social value is higher in the case of the men.

As shown on the "Profile of Values," the mean scores of the women students of physical education are average in each value. The rather flat profile indicates balanced personality.

The mean scores of the men are average in the theoretical, economic, and religious attitudes. In the political value, however, their score ranks in the seventieth percentile. This finding seems to lend some confirmation of Spranger's thesis, already quoted, that the sphere of sport "lies on the borderline where the region of power and the aesthetic sphere of play partly touch and partly overlap."

It is quite evident that men students of physical education are more motivated in the direction of power than women are. While a dominant political value may be indicative of probable success in such dynamic aspects of physical education as the achievements of athletic teams, it should also be expressed in human values. The "power type," with intelligent purposes and methods, might make a genuine contribution to personality development and character education.

This investigation brings out, emphatically, the significantly low score of the men students in aesthetic attitudes. Their mean score in this value ranks in the *twentieth percentile*. Where the aesthetic value is significantly low, it might be possible for the teacher-training program to raise this value to a higher level. Aesthetic values are important if physical education is to contribute a cultural ideal to the social heritage.

The disparities in the religious values shown in Table I seem to be due to the environmental differences of rural and urban institutions. It may be inferred that the students were not particularly motivated in their choice of physical education for character building purposes.

Finally, it might be suggested that the profile of values of each student could contribute much information pertinent to the study of individual interests and attitudes.

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The Measurement of Organic Efficiency for the Prediction of Physical Condition in Convalescent Patients

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INTRODUCTION AND PHYSIOLOGICAL BASIS

THIS study attempts to construct a rating scale for a functional test of organic condition. It aims to help the physician decide when a patient can safely take up the various forms of business activity or indulge in recreation requiring different amounts of vigor.

The test should be used, of course, as a supplement to the regular medical examination. It does not measure structural organic defects except as it may indicate lack of compensation in certain types of activity.

Items Used in Making the Scoring Table.—Systolic pressure (auditory method) gives an indication of the maximum pressure during the cardiac systole and is necessary for the pulse-pressure determination. It gives the best measure of extreme strain to which the artery is subjected.

The varying degrees of systolic and arterial strain are well illustrated in exercises of strength, speed, or endurance. In strength exercises the systolic pressure may increase during the activity from 105 to 265 mm. Hg.[1] The average of 23 men before lifting was 111 mm., during the lift 180 mm., and two to three minutes after the lift 110 mm. Hg. After sprinting, the pressure increased in the majority of cases up to an average of 157 mm.[2] with the maximum after 100 yards of 194 mm.[3] In endurance running the systolic pressure normal of 127.8 mm. decreases immediately after the marathon run to 103.6 in the horizontal position and from 124 mm. to 100.2 in the erect position. These illustrations

[1] J. H. McCurdy, M.D., "The Effect of Maximum Muscular Effort on Blood Pressure," *American Journal of Physiology* (1901), 5:95–103.

[2] J. H. McCurdy, M.D., *Physiology of Exercise*, Second Edition, p. 90. Philadelphia: Lea and Febiger, 1928. See also thesis by A. L. Cross, International Y.M.C.A. College, Springfield, Mass., 1901, "Effect of Exercises of Speed upon Arterial Pressure."

[3] J. H. Barach, "Physiological and Pathological Effects of Severe Exertion (The Marathon Race)," *Am. Phys. Ed. Review* (1911), 16:200, 262, 325, also *Archives of Internal Medicine* (1910), 5:382–405.

indicate the necessity of advising patients regarding the type and vigor of activity in relation to arterial pressure.

The diastolic pressure (fourth phase) indicates the minimum pressure. It is an index of the continual strain placed upon the arteries between each cardiac systole. From the nutritive standpoint it shows the pressure head between each systole. The abnormal ranges, of course, indicate sclerotic arteries or undue peripheral resistance. Diastolic pressure is a better index of hypertension than systolic pressure. The pulse pressure shows the abrupt changes in strain to which the artery is subjected. The pulse pressure indicates the cardiac energy in excess of the diastolic pressure. According to Stone[4] this pulse pressure is, under normal conditions, 50 per cent of the diastolic pressure. Others have placed the danger limits below 25 per cent and above 75 per cent. A simple method is $\frac{P.P. \times 100}{D.P.}$.

The systolic and pulse pressures are an index of myocardial ability and diastolic pressure of peripheral resistance.

Pulse Rate.[5]—The pulse-rate recovery time is an additional index of circulatory-respiratory efficiency. The rate should be taken under standardized conditions: e.g., the standing recovery time should be taken at a definite time after completion of a standard exercise. The subject should assume the stride-stand position (feet nine to twelve inches apart) without deep respirations or slow muscular contraction of the legs and trunk. Deep breathing alternately changing intrathoracic and intra-abdominal pressure or slow muscular contractions act as auxiliary aids to the heart in the return flow of the blood. These aids increase the stroke volume and decrease the pulse rate. Records in a study now in progress show decreases of rate from eight to sixteen beats, during slow trunk and leg rotations.

Frost[6] states concisely the complex functions of cardiac muscles:

"1. Power of originating contractile impulses.
2. Excitability, the power of receiving impulses.
3. Conductivity, the power of conducting impulses by special differentiated fiber paths.
4. Contractility.
5. Tonicity."

He gives a good bibliography of intrathoracic pressure as a test. The vital capacity and the breath-holding represent respiratory ca-

[4] Dr. Willard J. Stone, "The Clinical Significance of High and Low Pulse-Pressures with Special Reference to Cardiac Load and Overload," *Jour. A.M.A.* (Oct. 4, 1913), 1256–1259.

[5] J. H. McCurdy, M.D., *Op. cit.*, 45–70.

[6] Harold M. Frost, "A Study of Cardio-Vascular Reaction to Abnormal Variations of Intrathoracic Pressure," *The Proceedings of the 33rd Annual Meeting of the Association of Life Insurance Medical Directors of America*, Vol. IX, 207–221.

pacity. They also give an index of cardio-vascular-respiratory ability. The raw correlation comparing the varsity swimmers with the infirmary group in breath-holding after exercise was +.531 with the convalescent hospital group +.736. The vital capacity raw correlation of the swimmers with the infirmary group was +.311 and with the convalescent group +.705. No battery of tests has yet been devised which completely measures these complex functions of organic capacity. It is believed this test merits a careful trial under varying conditions.

This scoring table for the measurement of organic efficiency is based upon the records of 593 cases (536 different persons). The groups are:

1. Freshman examinations (Springfield)	318 men
2. Infirmary cases—only those with temperature	90 men
3. Convalescent patients—Burke Foundation Hospital	48 men 91 women
4. Varsity swimmers (Springfield)	46 men
5. Changes of original index (Springfield)	
a) Decreases due to illness	29 men
b) Increase during training	8 men
6. Freshman Fall and Spring examinations (same men)	85 men

The addition of the convalescent group and the 1935 Fall freshman examinations has made possible an increase in the range of the May, 1935, scoring table.

Scoring Range	*Old Table*	*New Table*
1. Sitting diastolic	50 to 100 mm.	50 to 148 mm. Hg.
2. Breath holding after exercise	8 to 56 secs.	4 to 60 secs.
3. Pulse difference before and after exercise	+32 to −32 beats	same
4. Standing pulse pressure	8 to 72 mm.	8 to 92 mm.
5. Vital capacity	not included	1200 to 7300 cc.

SPECIFIC PURPOSE

The specific purpose of this article is fivefold: first, to present the revised organic efficiency index for the prediction of physical condition; second, to present new developments in the research on organic efficiency measurements; third, to present results of the study of organic efficiency measurements in convalescent patients from ages sixteen to seventy-four, both male and female; fourth, to present additional data for further validation of the organic efficiency index as an index for the prediction of physical condition; fifth, to present data indicating that norming the organic efficiency index for age, weight, or sex is unnecessary.

ACKNOWLEDGMENTS

This study has been made possible through the active cooperation of Dr. Frederick Brush, Medical Director of the Burke Foundation Hospital, Mr. George Brush, and the Directress, Pauline G. Kirschenbaum.

The measurements were taken at White Plains by L. A. Larson.

Bliss P. Sargeant assisted in freshman measurements at Springfield, bringing the total in this group up to 318.

Dr. Edward E. Cureton of Alabama Polytechnic Institute gave valuable statistical advice.

Drs. F. S. Hopkins and P. V. Karpovich, and Professor T. K. Cureton have continued their interest in this later study of convalescent patients, particularly in its relation to the earlier norms published in May, 1935. Mrs. Whitney, nurse, cooperated in securing the infirmary data.

METHOD OF VALIDATION

The validity of the Organic Efficiency Index as an index in predicting physical condition is based on the following facts:

1. The placement of the typical groups on the organic efficiency scale which has ten divisions or steps in scoring the physical condition of an individual.[7] The "Good" condition group or swimmers are all found, except one which was in the "Below Average" division, in the four upper classifications on the organic efficiency scale; or 97.8 per cent were found in the "Above Average," "Good," "Very Good," and "Excellent" classifications. The "Poor" condition or infirmary group fell into the lower five divisions with the exception of 7.7 per cent which were found in the "Average," "Above Average," and "Good" classifications. In the convalescent group all except 7.8 per cent, which represents nine subjects in the "Average," "Above Average," and "Good" classifications, fell within the lower five divisions. In combining the infirmary convalescent groups we find that no subjects are placed in the "Excellent" and "Very Good" divisions, while only eighteen subjects out of 230, or 7.8 per cent, are found above the "Below Average" classification as compared to 97.8 per cent above the same classification for the "Good" condition group or swimmers. These facts are enough to definitely prove that the Organic Efficiency Index measures the difference in physical condition between these groups. Further studies are now in progress to determine the general applicability of the Index.

2. The rise in the Organic Efficiency Index after a systematic training or conditioning period, also after a definite period of convalescence has been determined. We have shown an increase of 17.5 per cent in the Organic Efficiency Index in eight men as a result of systematic conditioning for swimming competition. The authors are now in the process of measuring improvement in cross-country running by the use of the Organic Efficiency Index. The authors have found a definite rise in the Organic Efficiency Index after subjects have been released from the college infirmary. In presenting the facts, we have found an increase of 26.1 per cent in the Organic Efficiency Index in twenty-three men fol-

[7] See chart, page 90.

lowing their release from the infirmary after a definite period of convalescence. We have found an increase of 9.5 per cent in eighty-five men in the Organic Efficiency Index after the completion of one year's work at Springfield College. This indicates that the Organic Efficiency Index can be used to measure improvement in physical condition.

3. The study shows a decrease in the Organic Efficiency Index after an acute illness and fever which required the individual to remain in bed for two or more days. We have found a decrease of 21.2 per cent in the Organic Efficiency Index in thirty subjects under these conditions. All these subjects were examined in the infirmary as soon as their temperatures became normal. The Organic Efficiency Index was obtained on these men sometime before entering the infirmary, or when they were in apparent good health.

DEVELOPMENT OF ORGANIC EFFICIENCY INDEX

In beginning the study the authors selected twenty-six organic measures which have been used to measure organic efficiency.[8] The method used to determine the significant organic items for a test battery was to correlate each of the twenty-six organic items using the bi-serial[9] correlation and the "Good" condition group or swimmers, and the "Poor" condition group or infirmary subjects as the criterion groups. The significant correlations obtained were as follows:[10]

1. Sitting diastolic pressure	$-.622 \pm .037$
2. Breath-holding twenty seconds after Standard Stair Climbing Exercise	$+.531 \pm .043$
3. Difference between standing normal pulse rate and pulse rate two minutes after exercise	$+.446 \pm .048$
4. Sitting pulse pressure	$+.414 \pm .050$
5. Standing pulse pressure	$+.346 \pm .053$
6. Vital capacity (temperature correction)	$+.311 \pm .055$

These six organic items were used in a multiple correlation to determine their value or accuracy in predicting organic efficiency as a group. The Fisher-Doolittle method for solving a multiple correlation was used.[11] The resulting multiple correlation for these six organic measures was as follows:

$$R_m = .947$$

[8] J. H. McCurdy and L. A. Larson, "Measurement of Organic Efficiency for the Prediction of Physical Condition," *Supplement to Research Quarterly*, VI: 2 (May, 1935), 11–41.

[9] Richardson and Stalnaker, "A Note on the Use of Bi-Serial *R* in Test Research," *Journal of General Psychology*, VIII: 2 (April, 1933), 463–65.

Formula: $r_{bis} = \dfrac{M_2 - M_1}{\sqrt{y}} \cdot \sqrt{pq}$

[10] J. H. McCurdy and L. A. Larson, *Op Cit.*, p. 40 (Summary of Correlations).

[11] Edward E. Cureton, *Directions for Solving Multiple Correlation Problems by Use of the Fisher-Doolittle Method.* Mimeographed copy.

The *B*-regression coefficient for the sitting pulse pressure was comparatively so small that it was decided to eliminate this item and repeat the calculations. Another reason for eliminating this item was that the intercorrelation between sitting pulse pressure and standing pulse pressure was +.746. This indicates a repetition of the same physiological measurement. Therefore, the multiple correlation was calculated for the five remaining organic items with the resulting value obtained:

$$R_m = .947$$

The *B*-regression value for the sitting pulse pressure was so small that it did not affect the value of the multiple correlation. This, of course, makes it obvious that the sitting pulse pressure should be eliminated from the test battery. The reason for adding the vital capacity was that the bi-serial correlation between the "Good" condition group and convalescent group was found to be +.705, also it was found valuable in the multiple correlation development.

The "weights" were determined for each of the organic items by use of the multiple correlation procedure. The revised test with the proper weighting for each item is as follows:

	Raw Correlation	*Weighting*
1. Sitting diastolic pressure	−.622 ± .037	−5.5
2. Breath-holding 20 seconds after Stair Climbing Exercise	+.531 ± .043	+4.3
3. Difference between standing normal pulse rate and pulse rate two minutes after exercise	+.446 ± .048	+4.7
4. Standing pulse pressure	+.346 ± .050	+1.0
5. Vital capacity (temperature correction)	+.311 ± .055	+1.3

DESCRIPTION OF TEST

In order to obtain the Organic Efficiency Index it is first necessary to obtain the age and weight of the individual so as to determine the amount of exercise to be given. The exercise (number of ascents on the stairs) is determined by Table I, which was prepared by the Prudential Life Insurance Company of America.[12]

After the amount of exercise to be given in the test is known, it is next necessary to secure the sitting normal systolic and diastolic pressure (fourth phase), standing normal systolic and diastolic pressure, standing normal pulse rate (fifteen seconds and multiply by four). The vital capacity is next obtained by the use of the flarimeter (large orifice). The vital capacity is obtained by multiplying the length of the blow in seconds by two hundred, which represents the release of air per second from the lungs. A thermometer should be lowered into the air chamber of the flarimeter so as to correct the vital capacity to the temperature of the body or 37 degrees C or 98.6 degrees F. The temperature correction for vital capacity can be made by use of McCloy's

[12] Medical Department of the Prudential Insurance Company of America, *Determining Circulatory Fitness-Flarimeter Tests*, Table 3, 22, Newark, N.J.

TABLE I

MALES

STANDARD NUMBER OF ASCENTS

(Adapted from Two-Step Exercise Test of Master and Oppenheimer)

Wgt. (lbs.)	Age in Years											
	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69
50– 59	28											
60– 69	27	34										
70– 79	26	32										
80– 89	26	30	35	36	35	34	32	30	29	27	26	24
90– 99	25	28	33	34	32	31	30	28	27	26	24	23
100–109	24	26	30	31	30	29	28	27	25	24	23	22
110–119	23	25	28	29	28	27	26	25	24	23	22	21
120–129	23	24	27	28	27	26	25	24	23	22	21	20
130–139	22	23	25	27	26	25	24	23	22	21	20	19
140–149	21	23	25	26	25	24	23	22	21	20	19	18
150–159	21	22	24	25	24	23	22	21	20	20	19	18
160–169	20	22	23	24	23	22	21	21	20	19	18	17
170–179		22	22	23	22	21	21	20	19	18	18	17
180–189		21	21	22	21	21	20	19	19	18	17	17
190–199			20	21	21	20	20	19	18	17	17	16
200–209			19	20	20	19	19	18	17	16	16	15
210–219			18	19	19	18	18	17	16	15	15	14
220–229			17	18	18	17	17	16	15	14	14	13

table.[13] Two measurements of vital capacity should be taken with the selection of the largest measurement. The subject should be given a rest of one minute between each blow. Following these measurements the stair-climbing exercise is given on the basis of the age and weight of the individual.[14] Following the exercise, which continues for ninety seconds, the subject is allowed to sit close to a table on which is the flarimeter with the small orifice open. The blow should begin twenty seconds after the exercise with only one large inhalation made before blowing. The subject should be asked to make one large inhalation fifteen seconds following the exercise and blow when ready. This will take approximately five seconds, making the blow begin twenty seconds following the exercise. The stop-watch used should have two large hands so that one hand will always be continuous. This is necessary in order to obtain the length of the breath-holding, and also be able to secure the pulse rate exactly two minutes after exercise.

An example will make this clear. Using the face of the watch the

[13] C. H. McCloy, "The Spirometer as an Instrument of Precision," *American Physical Education Review*, XXX (May, 1927), 323–327.

[14] Stairs may be obtained from the Becton and Dickinson Company, Rutherford, N.J.

exercise will begin at sixty and continue for ninety seconds which will take the hand to thirty. The subject is asked to sit close to the flarimeter and breath normally for fifteen seconds. This will take the hand to forty-five on the face of the watch. The subject is then asked to take one large inhalation and *blow as long as possible*. If the hand on the face of the watch was on forty-nine when the blow began, and continued until twenty, the length of this blow would be thirty-one seconds. The hand on the stop-watch is allowed to continue until it comes to fifteen (one minute and forty-five seconds after exercise). The subject is asked to stand. At thirty (two minutes following exercise) the pulse rate is taken for fifteen seconds and multiplied by four. The form used for recording data will be found in Table II.

TABLE II

Name ..... Age ..... Weight ..... Sex .....
Date ..... Hour ....
1. Pulse Rate. Standing Normal 1. ..... 2. .....
2. Blood Pressure
(*a*) Systolic Pressure (*b*) Diastolic Pressure 4th—Phase (*c*) Pulse Pressure
Sitting 1.....2..... 1.....2..... 1.....2.....
Standing 1.....2..... 1.....2..... 1.....2.....
3. Vital Capacity 1. Seconds..... Temperature..... Corrected Volume.....
2. Seconds..... Temperature..... Corrected Volume.....
4. Exercise and measurements following:
(*a*) Exercise. Number of ascents 1. ..... 2. .....
(*b*) Breath-Holding 20 seconds after exercise 1. ..... 2. .....
(*c*) Pulse rate (Std.) 2 minutes after exercise 1. ..... 2. .....

NOTE: Two or more spaces should be allowed in the above form for a re-examination of the subject.

RELATION OF AGE, WEIGHT, AND SEX TO THE ORGANIC EFFICIENCY INDEX

It was first thought that it would be necessary to norm the Organic Efficiency Index for age, weight, and sex. With this in mind the authors arranged the scoring table for males 16 to 25 years of age. The second scoring table was arranged for ages 25 to 74. After these two scoring tables were prepared the Organic Efficiency Index was obtained for the subjects within the range of these ages using the two scoring tables for the respective ages. The total number of subjects between ages 16 and 25 was 275, while the total number between ages 25 and 74 was 118. The coefficient of correlation was obtained between the Organic Efficiency Index and age in each of the two age groups. The correlation coefficient for the Organic Efficiency Index and ages 16 to 25 was found to be —.122, while the correlation coefficient for the Organic Efficiency Index and ages 25 to 74 was found to be —.104. These small correlation coefficients indicate that norming the Organic Efficiency Index for age is unnecessary on the basis of this data.

Whether it was necessary to norm the Organic Efficiency Index for weight was determined in the following manner. First, the weight for the group with ages from 25 to 74 was correlated with the Organic Efficiency Index, with the resulting correlation of —.073. The range of weight in this group was from 86 pounds to 200 pounds with a total of 118 subjects. Second, the weight for the group with ages from 16 to 25 was correlated with the Organic Efficiency Index with the correlation coefficient obtained —.049. The total number of subjects used in this group was 279, with the weight range from 100 to 200 pounds. These correlation coefficients obviously indicate that it is not necessary to norm the Index for weight on the basis of these groups.

Whether the Organic Efficiency Index would apply to the female group was determined by separating the female scores from the male scores in 139 subjects. In this group 48 were females from the ages 16 to 66, while 91 were males from ages 16 to 74. The bi-serial[15] correlation coefficient between these two groups was .1547, which indicates that the Organic Efficiency Index is applicable to both sexes without renorming the present scoring table. The Organic Efficiency Index norms when used by the female group, however, represent a slightly higher standard. The Organic Efficiency Index mean for the female group was 261.24, whereas the mean for the male group was 294.62.

The final scoring table for the determination of the Organic Efficiency Index is prepared from the following data: (1) the convalescent group which contained 48 females and 91 males; (2) the "Good" condition group or swimmers with the age range of 17 to 23 and a total of 46 subjects; (3) the "Poor" condition or infirmary group with the age range 17 to 26, and a total of 90 subjects; (4) the Springfield College freshmen group, or 318 between the ages of 17 to 25.

The finding of these facts in relation to age, weight, and sex in terms of organic efficiency is contrary to general belief. However, the facts lead us to the step we are taking. It might be stated, however, that we have only a small amount of data, or forty-eight females and ninety-one males on which to base our conclusion as to the relation of sex to the Organic Efficiency Index.

BURKE FOUNDATION CONVALESCENTS IN THE ORGANIC EFFICIENCY INDEX

The Organic Efficiency Index was obtained on 139 convalescents at the Burke Foundation Hospital in White Plains, New York. The following information was also obtained: age, weight, medical diagnosis, total length of illness, length of time in city hospital, length of time in Burke Foundation, occupation, and extent of exercise in the Burke Foundation. The above information will be found in Table IX.

The bi-serial correlation for a two-point distribution between the

[15] Richardson and Stalnaker, *Op. Cit.*, 463–65.

Organic Efficiency Index of the convalescent patients, and the Organic Efficiency Index of the "Good" condition group or swimmers was found to be .7594. We also found that 36.7 per cent of the 139 patients were found in the "Extremely Poor" classification of physical condition. In the ten steps or classifications of physical condition, 92.2 per cent of the convalescent patients were found in the lower five classifications, while 97.8 per cent of the "Good" condition group or swimmers were found in the upper four classifications.

CASE STUDIES USING THE ORGANIC EFFICIENCY INDEX

We have been able to secure the Organic Efficiency Index on the same individual under different physical condition circumstances, i.e., in "Good" condition as a member of the swimming team, in "Poor" condition as a Springfield College infirmary patient, entrance examination to Springfield College, and May examination after the completion of a year's work at Springfield College. The following tables will show the Organic Efficiency Index and the percentage change in the Index under these different physical condition classifications.

TABLE III[16]

Subject	*Freshmen September O.E.I.*	*Infirmary O.E.I.*
1	520	378
2	607	437
3	598	429
4	645	581
5	695	616
6	750	383
Average	636	471

Percentage decrease in the Organic Efficiency Index = 25.9.

TABLE IV

Subject	*Freshmen September O.E.I.*	*Swimming O.E.I.*	*Freshmen May O.E.I.*
1	444	759	509
2	462	634	593
3	456	693	693
4	561	653	663
5	629	657	695
6	691	657	611
7	650	633	681
8	689	694	663
Average	573	673	639

Swimming Percentage increase in O.E.I. = 17.5
Infirmary Percentage decrease in O.E.I. = 5.1
September-May Freshmen increase in the O.E.I. = 11.5 per cent.

[16] These scores were obtained by the use of the scoring table in the *Research Quarterly Supplement*, May, 1935, p. 23, Table I.

TABLE V

Subject	Freshmen September O.E.I.	Infirmary O.E.I.	Freshmen May O.E.I.
1	489	459	726
2	520	479	569
3	525	318	649
4	515	454	582
5	470	590	434
6	466	597	732
7	439	448	610
8	361	472	487
9	412	522	645
10	369	428	478
11	592	543	633
12	606	613	543
13	609	374	616
14	609	485	573
15	616	542	583
16	634	400	599
17	627	506	521
18	742	497	633
19	707	589	625
20	725	503	612
21	722	492	765
22	700	410	774
23	898	574	688
24	814	511	778
Average	590	492	619

Percentage decrease in O.E.I. = 16.6 Percentage increase in O.E.I. = 25.8
September-May increase in the O.E.I. = 4.9 per cent

TABLE VI

	Freshmen				
Subject	September O.E.I.	May O.E.I.	Subject	September O.E.I.	May O.E.I.
1	420	396	21	520	587
2	396	597	22	506	660
3	311	530	23	519	537
4	401	519	24	508	529
5	340	607	25	489	589
6	470	643	26	517	700
7	457	760	27	490	797
8	448	682	28	571	719
9	464	577	29	594	643
10	452	599	30	559	894
11	468	637	31	578	648
12	467	553	32	541	783
13	464	496	33	594	649
14	555	864	34	591	548
15	448	662	35	565	537
16	501	589	36	559	537
17	512	603	37	583	525
18	515	736	38	577	661
19	537	764	39	563	685
20	523	418	40	594	595

TABLE VI—(*Continued*)

Freshmen					
Subject	*September O.E.I.*	*May O.E.I.*	*Subject*	*September O.E.I.*	*May O.E.I.*
41	513	595	64	662	490
42	593	526	65	656	520
43	574	706	66	639	619
44	613	752	67	661	657
45	604	766	68	660	518
46	612	840	69	703	950
47	607	564	70	737	659
48	603	568	71	721	759
49	622	692	72	732	603
50	596	767	73	703	672
51	626	608	74	699	544
52	640	684	75	752	598
53	679	754	76	752	581
54	663	563	77	718	657
55	665	548	78	765	732
56	660	642	79	841	880
57	644	602	80	761	811
58	655	580	81	956	841
59	647	782	82	810	754
60	684	698	83	810	697
61	654	653	84	770	923
62	652	797	85	812	922
63	678	695			
			Average	600	657
			Percentage increase in O.E.I. = 9.5		

RELIABILITY OF ORGANIC EFFICIENCY INDEX

The validity of the Organic Efficiency Index in predicting physical condition is determined by the use of the two typical groups; the swimming group or "Good" condition group, and the infirmary or "Poor" condition group. We have also a third group which may serve to indicate the validity of the Organic Efficiency Index, that is, the convalescent patients, which will serve as a typical "Poor" condition group. The coefficient of correlation was determined using the two "Poor" groups as the criterion group for poor condition. The bi-serial correlation for a two-point distribution was used with the resulting value:[17]

r_{bis} "Good" and "Infirmary" = .8334
r_{bis} "Good" and "Convalescent" = .7594

The first coefficient of correlation will be used as the value indicating the validity of the Organic Efficiency Index in predicting physical condition as it eliminates the age variable. However, the use of convalescent group strengthens the value of the Organic Efficiency Index.

The multiple correlation was calculated to determine the extent at which the organic measures represent the criterion. The multiple cor-

[17] Richardson and Stalnaker, *Op. Cit.*, pp. 463–65. $r_{bis} = \frac{M_2 - M_1}{\sqrt{y}} \sqrt{pq}$.

relation was calculated using the Fisher-Doolittle method with the resulting value obtained:[18]

$$R_m = .947$$

The Organic Efficiency Index contains two blood-pressure measurements, the sitting diastolic pressure, and the standing pulse pressure. The reliability and objectivity of blood-pressure measurements have been found by the authors to be high enough to justify their use in the test battery and render the Index valid.[19] The reliability coefficients for blood-pressure measurements range from .718 to .952, while the objectivity coefficients range from .773 to .910.

THE ORGANIC EFFICIENCY INDEX AND TYPICAL GROUPS

The following table will contain the ten divisional classifications of physical condition, with the number placement and percentage placement for each of the four physical condition groups that we have in this study. The summary indicates the total percentage placement of the individuals in specific classifications, and will be related to other groups for the sake of comparison between typical groups in physical condition. The correlation coefficients have been calculated to show numerically the value of the Organic Efficiency Index in placing individuals when using typical groups in "Poor" and "Good" condition. The correlation coefficient between the criterion groups of .8334 indicates the validity of the Organic Efficiency Index.

NUMBER AND PERCENTAGE PLACEMENT OF TYPICAL GROUPS IN THE ORGANIC EFFICIENCY INDEX

Percentile	Classification or Rating		"Good" condition Swimmers		"Average" condition Freshmen		"Poor" condition Infirmary		"Poor" condition Convalescents	
			No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
90	Excellent	438–up	8	17.4	49	15.4				
80	Very Good	402–437	11	23.9	48	15.1				
70	Good	373–401	14	30.4	40	12.6	1	1.1	2	1.4
60	Above Avg.	321–372	12	26.1	95	29.9	5	5.5	7	5.0
50	Average	320			2	0.7	1	1.1	2	1.4
40	Below Avg.	291–319	1	2.2	31	9.7	18	19.8	7	5.0
30	Fair	259–290			25	7.9	18	19.8	17	12.3
20	Poor	231–258			17	5.3	17	18.7	24	17.3
10	Very Poor	188–230			9	2.8	21	23.1	29	20.9
	Extremely Poor	187–down			2	0.7	10	10.9	51	36.7
Total number of Subjects			46		318		91		139	

[18] Edward E. Cureton, *Op. Cit.*, Mimeographed Report.
[19] J. H. McCurdy and L. A. Larson, *Op. Cit.*

SUMMARY

1. The "Good" condition group or swimmers have the highest percentage in "Excellent" condition, with the "Average" group or freshmen second; while the "Infirmary" and "Convalescent" groups have no one in this classification.

2. The "Good" condition group or swimmers have the highest percentage in "Very Good" condition, with the "Average" group second; while the "Infirmary" and "Convalescent" groups have no one in this classification.

3. The "Good" condition group have the highest percentage in "Good" condition, with the "Average" group second; while the "Infirmary" and "Convalescent" groups have less than 3 per cent present in this classification.

4. The "Convalescent" and "Infirmary" groups have 87.2 per cent and 72.5 per cent, respectively, in "Fair," "Poor," "Very Poor," and "Extremely Poor" condition, while the "Good" condition group has no one present in these classifications, and the "Average" group has 16.7 per cent in these classifications.

5. The "Good" condition group has 97.8 per cent in "Above Average," "Good," "Very Good," and "Excellent" condition; while the Infirmary group has 6.6 per cent and the convalescent group 6.4 per cent in these classifications.

6. The correlation coefficients between groups are:[20]

r"Good" and "Infirmary" = .8334
r"Good" and "Convalescent" = .7594
r"Average" and "Infirmary" = .5370
r"Average" and "Convalescent" = .6329

METHOD OF SCORING

The Organic Efficiency Index can be obtained in the following manner:

1. Change the raw score of the organic measurement to the T-score. Table VIII.
2. Obtain the final score, or T-score multiplied by the proper weighting, for each of the organic measurements. Table VIII.
3. Add the scores for each of the organic measurements to obtain the final score, or the Organic Efficiency Index. Table VII.
4. Determine the physical condition classification. Table VII.

An example will make the use of the scoring device clear. The following is a subject examined while a patient at the Springfield College Infirmary. This subject was later examined while a member of the swimming team. The infirmary Organic Efficiency Index was 241, while the swimming Organic Efficiency Index was 325. This indicates a change in the physical condition classification from "Poor" while in the

[20] Richardson and Stalnaker, *Op. Cit.*, 463–65.

infirmary to the "Above Average" while a member of the swimming team. In percentage, the increase of the Organic Efficiency Index is 34.8.

TABLE VII

Name ....*H*..... Date .....

Organic Measurements	*Raw Score*	*T-Score*	*T-Score X Weight*
1. Sitting diastolic Pressure	100	66	−363
2. Breath-holding 20 seconds after ex.	26	57.5	+247
3. Std. pulse rate minus pulse rate 2 mins. after exercise	−4	49.5	+233
4. Std. pulse pressure ...	32	51	+ 51
5. Vital capacity	5210	55	+ 73
		Total	241

Classification POOR

Classification	
90—Excellent	438-up
80—Very Good	402-437
70—Good	373-401
60—Above Avg.	321-372
50—Average	320
40—Below Avg.	291-319
30—Fair	259-290
20—Poor	231-258
10—Very Poor	188-230
Extremely Poor	187-down

CONCLUSIONS

1. The Organic Efficiency Index can be used without norming for age, weight, or sex on the basis of this data.

2. The Organic Efficiency Index can be used to measure improvement in physical condition through training or during convalescence.

3. The Organic Efficiency Index can be used to measure losses in individual efficiency.

4. The Organic Efficiency Index classification separates clearly the "Good" condition group of swimmers from the "Poor" condition group in the infirmary and convalescent hospital.

TABLE VIII

SCORING TABLE FOR ORGANIC EFFICIENCY MEASUREMENTS

Sitting Diastolic Pressure			Breath-Holding 20 seconds after Exercise			Difference Between Std. P.R. & P.R. 2 min. after Exerc.			Standing Pulse Pressure			Vital Capacity		
Dias.	T-Score	T-Score × −5.5	B.H.	T-Score	T-Score × +4.3	Pulse Rate Diff.	T-Score	T-Score × +4.7	Std. Pulse Press.	T-Score	T-Score × +1.0	V.C.	T-Score	T-Score × +1.3
148	85.5	−470	60	78	+335	+32	39.5	+186	92	81	+81	7300	81.5	+107
147	82	−451	59	77.5	+333	+31	41.5	+195	91	80	+80	7250	81.0	+106
146	80	−440	58	77.0	+331	+30	43.5	+204	90	79.5	+80	7200	80.5	+106
145	78	−429	57	76.5	+329	+29	45.5	+214	89	79	+79	7150	80	+105
144	76	−418	56	76	+327	+28	47.5	+223	88	78	+78	7100	79	+104
143	75.75	−416	55	75	+323	+27	49.5	+233	87	77.75	+78	7050	78	+102
142	75.50	−415	54	74.5	+320	+26	51.5	+242	86	77.5	+78	7000	77	+101
141	75.25	−414	53	74	+318	+25	53.5	+251	85	77.25	+77	6950	76	+100
140	75	−413	52	73.5	+316	+24	55	+259	84	77	+77	6900	75	+ 99
139	74.8	−412	51	73	+314	+23	58	+273	83	76.5	+77	6850	74	+ 97
138	74.7	−411	50	72.5	+312	+22	61	+287	82	76	+76	6800	73.5	+ 97
137	74.6	−410	49	72	+310	+21	64	+301	81	75.5	+76	6750	73	+ 96
136	74.5	−409	48	71.5	+307	+20	66.5	+313	80	75	+75	6700	72	+ 95
135	74.3	−408	47	71.25	+306	+19	68	+320	79	74.8	+75	6650	71	+ 93
134	74.2	−408	46	71	+305	+18	69.5	+327	78	74.7	+75	6600	70.5	+ 93
133	74.1	−407	45	70.5	+303	+17	71	+334	77	74.6	+75	6550	69.5	+ 91
132	74.0	−407	44	70	+301	+16	72.5	+341	76	74.5	+75	6500	69	+ 90
131	73.8	−406	43	69.75	+300	+15	71	+334	75	74.25	+74	6450	68.5	+ 90
130	73.7	−405	42	69.5	+299	+14	70	+329	74	74	+74	6400	68	+ 89
129	73.6	−405	41	69	+297	+13	69	+324	73	73.75	+74	6350	67	+ 88
128	73.5	−404	40	68.5	+295	+12	67.5	+317	72	73.5	+74	6300	66.5	+ 87
127	73.25	−403	39	68	+292	+11	66	+310	71	73	+73	6250	66	+ 87
126	73	−402	38	67.5	+290	+10	65	+306	70	72.5	+73	6200	65.5	+ 86
125	72.75	−400	37	67	+288	+ 9	64	+301	69	72	+72	6150	64.5	+ 85
124	72.5	−399	36	66	+284	+ 8	62.5	+294	68	71.5	+72	6100	64	+ 84
123	72.25	−398	35	65	+280	+ 7	61	+287	67	71	+71	6050	63.5	+ 84
122	72.0	−396	34	64.5	+277	+ 6	60	+282	66	70.5	+71	6000	63	+ 83
121	71.75	−394	33	64	+275	+ 5	59	+277	65	70	+70	5950	62.5	+ 82

TABLE VIII (*Continued*)

Sitting Diastolic Pressure			Breath-Holding 20 seconds after Exercise			Difference Between Std. P.R. & P.R. 2 min. after Exerc.			Standing Pulse Pressure			Vital Capacity		
Dias.	T-Score	T-Score × −5.5	B.H.	T-Score	T-Score × +4.3	Pulse Rate Diff.	T-Score	T-Score × +4.7	Std. Pulse Press.	T-Score	T-Score × +1.0	V.C.	T-Score	T-Score × +1.3
120	71.5	−393	32	63	+271	+ 4	58	+273	64	69.5	+70	5900	62	+ 82
119	71.3	−392	31	62	+267	+ 3	57	+268	63	69.5	+69	5850	61.5	+ 81
118	71.2	−391	30	61	+262	+ 2	55.5	+261	62	69	+69	5800	61	+ 80
117	71.1	−391	29	60	+258	+ 1	54	+254	61	68.5	+69	5750	60.5	+ 80
116	71.0	−390	28	59.5	+256	0	53.5	+251	60	68	+68	5700	60	+ 79
115	70.75	−389	27	58.5	+252	− 1	52.5	+247	59	67.5	+68	5650	59.5	+ 78
114	70.5	−388	26	57.5	+247	− 2	51.5	+242	58	67	+67	5600	59	+ 78
113	70.25	−387	25	56.5	+243	− 3	50.5	+237	57	66.5	+67	5550	58.5	+ 77
112	70	−385	24	55.5	+239	− 4	49.5	+233	56	66	+66	5500	58	+ 76
111	69.8	−384	23	54	+232	− 5	48.5	+228	55	65	+65	5450	57.75	+ 76
110	69.7	−383	22	53	+228	− 6	47.5	+223	54	64.5	+65	5400	57.5	+ 76
109	69.6	−383	21	52	+224	− 7	46.5	+219	53	64	+64	5350	56.5	+ 75
108	69.5	−382	20	50.5	+217	− 8	45.5	+214	52	63.5	+64	5300	56	+ 74
107	69.25	−381	19	49	+211	− 9	45	+212	51	63	+63	5250	55.5	+ 73
106	69.0	−380	18	48	+206	−10	44	+207	50	62	+62	5200	55	+ 73
105	68.75	−378	17	47	+202	−11	43	+202	49	61.5	+62	5150	54.5	+ 72
104	68.5	−377	16	45.5	+196	−12	42.5	+200	48	61	+61	5100	54	+ 71
103	68	−374	15	45	+194	−13	42	+197	47	60	+60	5050	53.5	+ 71
102	67	−369	14	44	+189	−14	41	+193	46	59.5	+60	5000	53	+ 70
101	66.5	−366	13	43	+185	−15	40	+188	45	59	+59	4950	52	+ 69
100	66	−363	12	42	+181	−16	39	+183	44	58.5	+59	4900	51.5	+ 68
99	65	−358	11	41	+176	−17	38	+179	43	58	+58	4850	51	+ 67
98	64.5	−355	10	39.5	+170	−18	37	+174	42	57	+57	4800	50.5	+ 67
97	64	−352	9	38.5	+166	−19	36	+169	41	56.5	+57	4750	50	+ 66
96	63	−347	8	37	+159	−20	35	+165	40	56	+56	4700	49.5	+ 65
95	62.5	−344	7	36	+155	−21	34	+160	39	55.5	+56	4650	49	+ 65
94	62	−341	6	34	+146	−22	33	+155	38	55	+55	4600	48.5	+ 64
93	61	−336	5	32	+138	−23	32	+150	37	54.5	+55	4550	48.25	+ 64
92	60.5	−333	4	30.5	+131	−24	31.5	+148	36	54	+54	4500	48	+ 63

91	60	−330
90	59	−325
89	58	−319
88	57.5	−316
87	57	−314
86	56	−308
85	55	−303
84	54	−297
83	53	−292
82	52	−286
81	51	−281
80	50.5	−278
79	50	−275
78	49	−270
77	48	−264
76	47	−259
75	46	−253
74	45.5	−250
73	45	−248
72	44	−242
71	43	−237
70	41.5	−228
69	40	−220
68	39	−215
67	38	−209
66	37	−204
65	36	−198
64	35	−193
63	34	−187
62	33	−182
61	32	−176
60	31.5	−173
59	30	−165
58	29.5	−162
57	28	−154
56	27.5	−151
55	26	−143
54	24.5	−135
53	23	−127
−25	30	+141
−26	29	+136
−27	28	+132
−28	27	+127
−29	25.5	+120
−30	24	+113
−31	22.5	+106
−32	21	+ 99
35	53	+53
34	52.5	+53
33	52	+52
32	51	+51
31	50	+50
30	49	+49
29	48	+48
28	46.5	+47
27	45.5	+46
26	44.5	+45
25	43.5	+44
24	42.5	+43
23	41.5	+42
22	40.5	+41
21	39.5	+40
20	38.5	+39
19	37	+37
18	36	+36
17	35	+35
16	34	+34
15	33	+33
14	32.5	+32
13	31	+31
12	29.5	+30
11	28	+28
10	27.5	+27
9	26	+26
8	25.5	+25
4450	47.5	+ 63
4400	47	+ 62
4350	46.5	+ 61
4300	46	+ 61
4250	45.5	+ 60
4200	45	+ 60
4150	44.5	+ 59
4100	44	+ 58
4050	43.75	+ 58
4000	43.5	+ 57
3950	43.25	+ 57
3900	43	+ 57
3850	42.75	+ 56
3800	42.5	+ 56
3750	42.25	+ 56
3700	42	+ 55
3650	41.75	+ 55
3600	41.5	+ 55
3550	41	+ 54
3500	40.75	+ 54
3450	40.5	+ 54
3400	40	+ 53
3350	39.75	+ 53
3300	39.5	+ 52
3250	39.25	+ 52
3200	39	+ 52
3150	38.75	+ 51
3100	38.5	+ 51
3050	38.25	+ 51
3000	38	+ 50
2950	37.8	+ 50
2900	37.7	+ 50
2850	37.6	+ 50
2800	37.5	+ 50
2750	37.25	+ 49
2700	37	+ 49
2650	36.75	+ 49
2600	36.5	+ 48
2550	36.25	+ 48

TABLE VIII (*Continued*)

Sitting Diastolic Pressure			Breath-Holding 20 seconds after Exercise			Difference Between Std. P.R. & P.R. 2 min. after Exerc.			Standing Pulse Pressure			Vital Capacity		
Dias.	T-Score	T-Score × −5.5	B.H.	T-Score	T-Score × +4.3	Pulse Rate Diff.	T-Score	T-Score × +4.7	Std. Pulse Press.	T-Score	T-Score × +1.0	V.C.	T-Score	T-Score × +1.3
52	21.5	−118										2500	36	+ 48
51	21	−116										2450	35.5	+ 47
50	20.5	−113										2400	35	+ 47
												2350	34.5	+ 46
												2300	34	+ 45
												2250	33.75	+ 45
												2200	33.5	+ 45
												2150	33	+ 44
												2100	32	+ 43
												2050	31	+ 41
												2000	30.5	+ 41
												1950	29	+ 39
												1900	28.5	+ 38
												1850	28	+ 37
												1800	27	+ 36
												1750	26	+ 35
												1700	25.5	+ 34
												1650	25	+ 34
												1600	24.5	+ 33
												1550	24.25	+ 33
												1500	24	+ 32
												1450	23.75	+ 32
												1400	23.5	+ 32
												1350	23	+ 31
												1300	22.5	+ 30
												1250	22	+ 30
												1200	21.5	+ 29

				1200	21.5 + 29

TABLE IX

CONVALESCENTS—BURKE FOUNDATION H

Subject	Age	Wt.	Sex	Medical Diagnosis	Length in Hospital: Length of Illness	Length in Hospital: City	Length in Hospital: Convalescent Days	Occupation	
1	34	119	F	Pneumonia	9 weeks	9 weeks	12	Maid	C
2	66	149	F	Hypothyroid, Psychoneuroses	3 years	Clinics	30	Housewife	W
3	27	123	F	Anemia	3 months	Home	3	Housewife	I
4	57	115	F	Nerve fatigue, weight loss	1 year	Home	12	Housewife	C
5	29	100	F	Pleural Effusion	9 months	7 weeks	5	Clerical	W
6	26	103	F	Class 1A Cardiac	3 weeks	3 weeks	12	Housewife	C
7	40	145	F		3 months	3 weeks	3	Housewife	C
8	62	126	F	Chronic Bronchitis	4 months	3 months	8	Unemployed	W
9	44	119	F	Lobar Pneumonia	4 weeks	2 weeks	5	Housewife	W
10	32	127	F	Psychoneuroses—Anxiety Neur.	6 months	Clinics	19	Housewife	I
11	34	108	F	Appendicitis—Operation	4 months	3 weeks	5	Home	W
12	55	144	F	Gyn. operation	3 months	2 weeks	16	Housewife	W
13	17	111	F	Chorea	1 month	2 weeks	24	Student	W
14	39	108	F	Lymphadenitis	1 year	7 days	17	Clerk	W
15	61	128	F	Chronic Interstitial Pneumonia	6 months	3 months	7	Housewife	W
16	26	93	F	Rheum. Heart Disease, Cardiac	13 years	Home	9	Steno.	W
17	49	152	F	Neurasthenia	4 months	Clinics	11	Saleslady	C
18	39	128	F	Thyroidect operation	9 months	4 weeks	19	Housewife	C
19	44	158	F	Cerebral Thrombosis, hypertension	3 months	6 weeks	2	Seamstress	
20	63	108	F	Mastectomy	2 months	3 weeks	17	Housewife	W
21	43	146	F	Hypertension, Class 2A cardiac	2 months	5 days	17	Home	I
22	57	132	F	Fecal Fistula—operation	2 months	2 months	4	Housewife	W
23	48	108	F	Arthritis (R) knee	3 weeks	2 weeks	2	Maid	
24	44	127	F	Infectious Arthritis	5 months	2 months	17	Home	W
25	46	125	F	Cancer breast—operation	3 months	3 weeks	7	Maid	
26	21	110	F	Ac. Rheum. Fever with Endocard.	2 months	8 weeks	15	Home	C
27	43	126	F	Hysterectomy	5 months	2 weeks	2	Housewife	W
28	50	129	F	Anemia	1 year	Clinics	2	Nursing	C
29	19	110	F	Appendicitis—operation	1 month	1 month	2	Clothes Ex.	C
30	37	145	F	Thyroidect operation	1 month	8 weeks	4	Housewife	W
31	52	167	F	Neurasthenia, Hypertension	5 months	Clinics	17	Housewife	
32	22	123	F	Rheum. Fever, Mild Cardiac	1 month	Home	15	Home	
33	35	153	F	Class 1A Cardiac	2 years	2 weeks	14	Housewife	I
34	32	140	F	Cancer (R) breast—Operation	5 years	1 year	5	Housewife	W
35	25	116	F	Anemia	2 years	6 weeks	21	Machine Op.	C
36	21	120	F	Class 1A Cardiac, M.S., M.I.	9 years	Clinics	17	Housewife	C
37	35	115	F	Psychoneuroses—Anxiety Neur.	3 years	1 month	15	Dictaph. Op.	
38	21	121	F	Thyroidect operation	2 years	5 weeks	4	Home	
39	56	137	F	Chr. Bronchitis, Arterioscler.	2 years	Clinics	4	Housewife	W
40	25	95	F	Neurosis	2 years	Clinics	15	Home	I
41	60	158	F	Psychoneuroses—Anxiety Neur.	13 years	Clinics	18	Nursing	C
42	29	92	F	Thyroidect operation	4 weeks	4 weeks	2	Housewife	
43	25	107	F	Laparotomy	6 weeks	2 weeks	18	Housewife	C
44	19	117	F	General Nerve Fatigue	8 months	Clinics	16	Clerical	C
45	29	86	F	Anemia, Class 2A cardiac	1 month	Clinics	9	Factory	
46	16	83	F	Mitral Stenosis with Regurg.	1 year	2 weeks	15	Student	C
47	40	109	F	Hypotension	6 months	Home	8	Theatrical	C
48	31	110	F	Chr. Bronchitis, Prev. T.B.	6 months	7 days	16	Housewife	C
49	23	130	M	Short Achilles Tendon		10 days	18	Clerical	C
50	62	132	M	Chr. Bronchitis	3 months	Home	11	Painter	
51	17	132	M	Dermatitis, Hypertension	6 months	4 months	4	Clerk	C
52	63	134	M	Arteriosclerosis	1 year	6 months	8	Clerk	
53	68	167	M	Prostatectomy	5 months	4 months	1	Painter	
54	39	127	M	(L) Ing. Hernia—Abscess	2 months	5 weeks	6	Fireman	
55	54	121	M	Fr. Middle Patella (R)	3 months	5 weeks	21	Laborer	
56	33	140	M	Gastritis	1 year	Intervals	4	Chauffeur	
57	58	113	M	Bronchiectasis	6 months	5 months	20	Restaurant	
58	47	151	M	Dysentery	3 months	2 weeks	4	Clerical	C
59	57	157	M	Arteriosclerotic Heart Dis.	2 years	2 months	16	Factory	C
60	25	124	M	Ac. Multiple Arthritis	1 month	13 days	14	Bus Boy	C
61	28	169	M	Rheum. Arthritis, End. Carditis	6 months	3 months	21	Porter	
62	53	127	M	Bronchiectasis	2 years	2 months	9	Factory	
63	27	117	M	Chr. Appendicitis	1 month	25 days	12	Waiter	C
64	55	135	M	Rheumatoid Arthritis	2 years	Clinics	2	Garage	
65	66	135	M	Detached Retina	6 months	6 months	5	Seaman	
66	26	145	M	Fib. Pleurisy, Pericarditis	8 weeks	6 weeks	9	Shoe cutter	C
67	54	157	M	Cellulitis of Leg	6 weeks	4 weeks	5	Mechanic	
68	31	150	M	Chr. Gastritis	8 months	Clinics	2	Chauffeur	C
69	47	179	M	Anxiety Neur.	2 years	3 weeks	7	Upholsterer	C
70	45	154	M	Appendicitis operation	2 weeks	10 days	2	Carpenter	
71	22	123	M	Ac. Appendicitis—operation	1 month	10 days	2	Clerk	C
72	49	105	M	Rup. Appendix	2 months	5 weeks	9	Sailor	C
73	45	112	M	Osteomyelitis of Toe	2 months	7 weeks	16	Clerical	
74	45	122	M	Pneumonia	3 weeks	1 week	7	Mechanic	
			M	Pneumonia		5 weeks	4 weeks	2	Insurance

ABLE IX
UNDATION HOSPITAL—CASE HISTORY

		McCurdy-Larson Organic Efficiency Index										
upation	Exercise	Sit. Dias.	Score	B.H.	Score	Pulse Rate Diff.	Score	Std. Pulse Press.	Score	V.C.	Score	Final Score
id	Golf	86	−308	6	+146	+ 8	+294	32	+51	1925	+38	221
usewife	Walking	120	−393	16	+196	− 4	+233	40	+56	2350	+46	138
usewife	Dancing, Golf	86	−308	10	+170	−20	+165	32	+51	3190	+52	130
usewife	Golf	110	−383	12	+181	− 8	+214	50	+62	3210	+52	126
rical	Walking	76	−259	8	+159	0	+251	32	+51	1490	+32	234
usewife	Golf	80	−278	9	+166	0	+251	30	+49	1925	+38	226
usewife	Golf	76	−259	17	+202	−12	+200	50	+62	2780	+50	255
employed	Walking	80	−278	6	+146	− 8	+214	20	+39	2140	+44	165
usewife	Walking	80	−278	9	+166	+ 8	+294	58	+67	3030	+51	300
usewife	Dancing, Golf	100	−363	10	+170	+ 4	+273	20	+39	2350	+46	165
me	Walking	94	−341	10	+170	0	+251	38	+55	2140	+44	179
usewife	Walking	86	−308	10	+170	− 8	+214	26	+45	2780	+50	171
dent	Walking	90	−325	13	+185	− 8	+214	36	+54	3430	+54	182
rk	Walking	100	−363	6	+146	+ 4	+273	38	+55	2580	+48	159
usewife	Walking	74	−250	22	+228	− 8	+214	30	+49	2550	+48	289
no.	Walking	70	−228	10	+170	+12	+317	86	+78	2340	+46	383
slady	Golf	90	−325	14	+189	− 4	+233	40	+56	2980	+50	203
usewife	Golf	100	−363	10	+170	0	+251	44	+59	3210	+52	169
mstress		140	−413	10	+170	− 4	+233	92	+81	2140	+44	115
usewife	Walking	84	−297	5	+138	+16	+341	60	+68	1710	+34	284
me	Dancing, Golf	110	−383	9	+166	− 8	+214	30	+49	3600	+55	101
usewife	Walking	100	−363	13	+185	− 8	+214	60	+68	2120	+43	147
id		80	−278	9	+166	+ 8	+294	58	+67	1700	+34	283
me	Walking	102	−369	10	+170	+ 4	+273	34	+53	2970	+50	177
id		130	−405	6	+146	0	+251	24	+43	1920	+38	73
me	Golf	90	−325	7	+155	+ 4	+273	50	+62	2130	+44	209
usewife	Walking	90	−325	13	+185	−24	+148	48	+61	2340	+46	115
rsing	Golf	90	−325	19	+211	+ 4	+273	46	+60	3190	+52	271
thes Ex.	Golf	86	−308	7	+155	+ 8	+294	44	+59	2780	+50	250
usewife	Walking	96	−347	5	+138	+ 8	+294	34	+53	2780	+50	188
usewife		130	−405	11	+176	−16	+183	84	+77	2140	+44	75
me		100	−363	6	+146	− 8	+214	36	+54	2350	+46	97
usewife	Dancing, Golf	126	−402	7	+155	0	+251	80	+75	1500	+32	111
usewife	Walking	90	−325	8	+159	0	+251	18	+36	2350	+46	111
chine Op.	Golf	94	−341	21	+224	− 4	+233	28	+47	3420	+53	216
usewife	Golf	90	−325	21	+224	−12	+200	40	+56	3630	+55	210
taph. Op.		90	−325	9	+166	+16	+341	52	+64	3630	+55	301
me		90	−325	9	+166	+ 4	+273	16	+34	2580	+48	196
usewife	Walking	120	−393	10	+170	− 4	+233	60	+68	2800	+50	128
me	Dancing, Golf	88	−316	7	+155	− 4	+233	20	+39	2580	+48	159
rsing	Golf	110	−383	9	+166	− 4	+233	48	+61	2350	+46	123
usewife		80	−278	10	+170	− 8	+214	40	+56	1940	+39	201
usewife	Golf	80	−278	11	+176	+16	+341	44	+59	3220	+52	350
rical	Golf	98	−355	20	+217	0	+251	34	+53	3010	+50	216
tory		100	−363	10	+170	0	+251	34	+53	2380	+47	158
dent	Golf	96	−347	9	+166	+12	+317	28	+47	2160	+44	227
eatrical	Golf	70	−228	22	+228	− 8	+214	26	+45	2160	+44	303
usewife	Golf	80	−278	18	+206	+ 4	+273	16	+34	3250	+52	287
rical	Golf, Basebl.	88	−316	28	+256	−12	+200	26	+45	5420	+76	261
nter		90	−325	20	+217	+ 4	+273	44	+59	3680	+55	279
rk	Golf	90	−325	22	+228	+ 4	+273	28	+47	4990	+70	293
rk		80	−278	24	+239	− 4	+233	60	+68	4110	+58	320
nter		86	−308	14	+189	− 4	+233	56	+66	2610	+48	228
eman		80	−278	12	+181	−16	+183	20	+39	3470	+54	179
borer		100	−363	10	+170	−18	+174	36	+54	3680	+55	90
auffeur		90	−325	14	+189	− 8	+214	30	+49	4120	+58	185
staurant		90	−325	5	+138	− 8	+214	44	+59	2610	+48	134
rical	Golf	100	−363	18	+206	0	+251	40	+56	5900	+82	232
ctory	Golf	84	−297	6	+146	−12	+200	62	+69	2780	+50	168
s Boy	Golf	80	−278	16	+196	+12	+317	32	+51	4280	+61	347
rter		100	−363	17	+202	− 4	+233	18	+36	3630	+55	163
ctory		88	−316	8	+159	0	+251	20	+39	3420	+53	186
niter	Golf	78	−270	8	+159	+ 4	+273	16	+34	4500	+63	259
rage		94	−341	32	+271	− 8	+214	22	+41	4700	+65	250
man		80	−278	22	+228	0	+251	52	+64	4720	+65	330
pe cutter	Golf	94	−341	10	+170	+12	+317	46	+60	3440	+54	260
chanic		90	−325	30	+262	− 4	+233	18	+36	4300	+61	267
auffeur	Golf, Basebl.	90	−325	10	+170	0	+251	48	+61	3240	+52	209
holsterer	Golf, Basebl.	98	−355	15	+194	− 4	+233	36	+54	3240	+52	178
rpenter		80	−278	21	+224	+12	+317	24	+43	5590	+78	384
rk	Golf	86	−308	23	+232	+20	+313	20	+39	4300	+61	337
lor	Golf	84	−297	15	+194	− 4	+233	16	+34	3870	+56	220
rical		100	−363	17	+202	+ 4	+273	10	+27	3870	+56	195
chanic		80	−278	16	+196	− 4	+233	12	+30	4740	+66	247
urance		86	−308	7	+155	+ 8	+294	46	+60	4610	+65	316

67	54	157	M	Cellulitis of Leg	6 weeks	4 weeks	5	Mechanic
68	31	150	M	Chr. Gastritis	8 months	Clinics	2	Chauffeur
69	47	179	M	Anxiety Neur.	2 years	3 weeks	7	Upholsterer
70	45	154	M	Appendicitis operation	2 weeks	10 days	2	Carpenter
71	22	123	M	Ac. Appendicitis—operation	1 month	10 days	2	Clerk
72	49	105	M	Rup. Appendix	2 months	5 weeks	9	Sailor
73	45	112	M	Osteomyelitis of Toe	2 months	7 weeks	16	Clerical
74	45	122	M	Pneumonia	3 weeks	1 week	7	Mechanic
75	47	127	M	Pneumonia	5 weeks	4 weeks	2	Insurance
76	21	150	M	Appendix	2 weeks	12 days	12	Painter
77	26	145	M	Hernia—operation	1 month	3 weeks	7	Seaman
78	45	127	M	Infected Hernia—operation	2 months	7 weeks	16	Porter
79	34	147	M	Tonsillectomy, Visceroptosis	8 months	5 weeks	16	Laborer
80	22	129	M	Ac. Rheum. Fever, Systolic Mur.	2 months	7 weeks	9	Newspaper
81	34	142	M	Rheum. M.S., M.I.	3 months	5 weeks	2	Laborer
82	55	178	M	Coronary—1st stage Heart Bk.	2 months	Home	11	Taxi Driver
83	18	121	M	Spinal Meningitis	4 months	14 weeks	4	Student
84	38	137	M	Rib resection	5 months	5 months	3	Painter
85	18	135	M	Ac. Rheum. Fever	3 months	Home	12	Student
86	41	193	M	Corneal Ulcers	1 year	4 months	1	Stage Hand
87	30	119	M	Influenza	2 weeks	2 weeks	1	Chauffeur
88	40	166	M	Rheum. Arthritis	6 months	3 months	1	Gardener
89	43	155	M	Gastric Ulcers, Slight Cardiac	2 years	2 months	8	Clerk
90	36	121	M	Rheum. Heart Disease, Cardiac.	3 years	2 weeks	22	Chauffeur
91	50	199	M	Nephrolithious, Br. Pneu.	3 months	3 months	17	Painter
92	41	133	M	Chr. Cholecystitis—operation	6 months	3 weeks	6	Brick Layer
93	20	133	M	Hemorrhoids—operation	2 weeks	1 week	16	Landscaping
94	65	137	M	Coronary Occlusion, Cardiac	1 year	6 weeks	16	Barber
95	48	101	M	Abscess of Omentum—operation		6 weeks	3	China Store
96	24	151	M	Ac. Art. Rheum.	3 months	6 months	13	Cook
97	63	158	M	Hypertension, Arteriosclerosis	5 months	Clinic	10	Porter
98	74	142	M	Prostate operation, Double Hernia	9 months	5 months	10	Clerk
99	38	192	M	Cerebellar Degeneration	4 years	12 days	10	Salesman
100	25	119	M	Nephrectomy	4 months	2 months	8	Housework
101	61	151	M	Fract. Skull	1 month	13 days	8	Hotel
102	56	135	M	Chronic Myocarditis, Neurasthenia	4 months	Clinic	6	Store
103	65	127	M	Infection of Left Hand	6 weeks	1 month	17	Waiter
104	37	138	M	Pneumonia	1 month	19 days	6	Mechanic
105	38	149	M	Br. Pneu. Secondary Anemia	2 months	Clinic	6	C.W.A.
106	32	133	M	M.s., M.I., Class 2A cardiac	3 years	Clinic	8	Shoe worker
107	35	134	M	Psycho. Neuroses. Anxiety Neur.	5 years	Clinic	10	Seaman
108	25	120	M	M.R. Rheum. Class 2A cardiac	2 months	1 week	8	Clerk
109	52	157	M	Hypertension, Sclerosis	9 months	6 weeks	14	Porter
110	25	149	M	Hypertensive Vas. Dis. Anemia	1 year	6 weeks	17	Messenger
111	25	114	M	Malnutrition	2 months	Clinic	1	Gen. Office
112	33	131	M	Chr. Glom. Nephritis	10 weeks	10 weeks	3	Fireman
113	42	113	M	Facial Erysipelas	1 month	3 weeks	1	Seaman
114	27	160	M	Poss. Abd. T.B.	2 years	Clinic	1	Porter
115	43	138	M	Bronchiectasis, Emphysema	2 years	Clinic	1*	Restaurant
116	24	155	M	Hernia (R) Inguinal	2 weeks	2 weeks	3	El. Oper.
117	30	130	M	Stricture—Adhesions	6 years	3 weeks	8	Watchman
118	41	100	M	Rupt. Ulcer, 2nd Anemia, Br. Pneu.	3 years	4 months	24	Salesman
119	28	117	M	Duod. Ulcer, Gastroenteritis	9 months	11 weeks	27	Clerk
120	32	130	M	Pneumonia	4 months	12 weeks	7	Painter
121	60	135	M	Unresolved Pneu. Arteriosclerosis	3 weeks	2 weeks	3	Painter
122	45	147	M	Pernicious Anemia	4 months	6 weeks	5	Engineer
123	47	123	M	Anemia	6 months	6 weeks	10	Clerk
124	33	133	M	Diffuse Toxic Thyroid	1 year	3 months	10	Chauffeur
125	43	157	M	General Nerve Fatigue	1 year	Home	12	Salesman
126	40	160	M	Ac. Rheum. Fever	5 weeks	5 weeks	31	Salesman
127	23	162	M	Thyroidectomy	1 year	4 weeks	14	Unempl.
128	16	122	M	Rheum. Heart, M.S.	6 years	1 year	11	Student
129	41	144	M	Bronchiectasis	4 months	2 weeks	38	Laborer
130	63	183	M	Psychoneuroses—Depressed		Clinic	12	West. Elec.
131	49	191	M	Catarrhal Jaundice	2 months	3 weeks	14	Barber
132	47	139	M	Perf. Ulcers of Stomach	1 month	2 weeks	11	El. Oper.
133	46	112	M	Tonsillitis	2 months	1 month	3	Motorman
134	17	117	M	Unres. Pneu. Neg. for TB, Maln.	6 weeks	Home	3	Clerical
135	37	125	M	Trichinosis	7 weeks	5 weeks	3	Laborer
136	35	143	M	Empyema	2 months	2 months	21	C.W.A.
137	22	126	M	Hyperthyroidism	6 months	1 month	17	Demonstr.
138	42	203	M	Gastric Neurosis	5 months	Home	33	Salesman
139	50	155	M	Emphysema with (R) heart Failure	5 years	4 months	5	Painter

echanic		90	−325	30	+262	− 4	+233	18	+36	3440	+54	268	
hauffeur	Golf, Basebl.	90	−325	10	+170	0	+251	48	+61	3240	+52	209	
pholsterer	Golf, Basebl.	98	−355	15	+194	− 4	+233	36	+54	3240	+52	178	
arpenter		80	−278	21	+224	+12	+317	24	+43	5590	+78	384	
erk	Golf	86	−308	23	+232	+20	+313	20	+39	4300	+61	337	
ilor	Golf	84	−297	15	+194	− 4	+233	16	+34	3870	+56	220	
erical		100	−363	17	+202	+ 4	+273	10	+27	3870	+56	195	
echanic		80	−278	16	+196	− 4	+233	12	+30	4740	+66	247	
surance		86	−308	7	+155	+ 8	+294	46	+60	3650	+55	256	
ainter	Golf, Basebl.	76	−259	14	+189	0	+251	28	+47	5820	+80	308	
aman	Golf, Basebl.	88	−316	21	+224	−20	+165	22	+41	4740	+66	180	
orter		90	−325	20	+217	0	+251	30	+49	2590	+48	240	
aborer	Golf, Basebl.	94	−341	17	+202	− 4	+233	42	+57	4320	+61	212	
ewspaper		80	−278	7	+155	+ 8	+294	42	+57	4330	+61	289	
aborer	Golf	96	−347	12	+181	− 8	+214	38	+55	4790	+67	170	
axi Driver		110	−383	26	+247	− 4	+233	44	+59	3020	+50	206	
tudent		86	−308	14	+189	− 8	+214	30	+49	3250	+52	196	
ainter		84	−297	6	+146	0	+251	30	+49	2820	+50	199	
tudent	Golf	80	−278	26	+247	0	+251	50	+62	4540	+64	346	
tage Hand		90	−325	12	+181	+ 4	+273	44	+59	4920	+68	256	
hauffeur	Golf, Basebl.	96	−347	14	+189	+ 8	+294	30	+49	3850	+56	241	
ardener		110	−383	8	+159	−12	+200	50	+62	4280	+61	99	
lerk		100	−363	15	+194	−16	+183	32	+51	4280	+61	126	
hauffeur	Golf	80	−278	7	+155	0	+251	30	+49	3630	+55	232	
ainter		90	−325	7	+155	+ 4	+273	36	+54	3630	+55	212	
rick Layer	Golf	80	−278	16	+196	0	+251	20	+39	4660	+65	273	
andscaping	Golf	80	−278	25	+243	− 4	+233	34	+53	4260	+60	311	
arber		92	−333	12	+181	+ 8	+294	60	+68	2550	+48	258	
hina Store	Golf	90	−325	13	+185	+ 8	+294	24	+43	3190	+52	249	
ook	Golf	94	−341	9	+166	+ 4	+273	40	+56	4900	+68	222	
orter		90	−325	12	+181	− 8	+214	46	+60	3830	+56	186	
lerk		90	−325	10	+170	− 4	+233	46	+60	2770	+49	187	
alesman		110	−383	22	+228	+16	+341	54	+65	6420	+89	340	
ousework		106	−380	9	+166	− 4	+233	30	+49	3210	+52	120	
otel	Golf	94	−341	23	+232	0	+251	50	+62	3630	+55	259	
tore		90	−325	14	+189	0	+251	12	+30	2780	+50	195	
aiter		90	−325	21	+224	0	+251	22	+41	3420	+53	244	
echanic	Golf	96	−347	10	+170	0	+251	26	+45	4060	+58	177	
.W.A.	Golf	90	−325	7	+155	− 4	+233	30	+49	2140	+44	156	
hoe worker		86	−308	8	+159	+ 4	+273	40	+56	4080	+58	238	
eaman		100	−363	12	+181	− 4	+233	72	+74	3210	+52	177	
lerk	Golf	80	−278	21	+224	+ 4	+273	68	+72	4300	+61	352	
orter		144	−418	12	+181	+ 8	+294	70	+73	3180	+52	182	
essenger	Golf, Basebl.	154	−470	14	+189	− 4	+233	34	+52	4080	+58	63	
en. Office	Golf	96	−347	14	+189	0	+251	22	+41	4300	+61	195	
ireman		150	−470	6	+146	+ 4	+273	20	+39	3650	+55	43	
eaman		80	−278	16	+196	0	+251	28	+47	3670	+55	271	
orter		96	−347	21	+224	0	+251	18	+36	4300	+61	225	
estaurant	Golf	92	−333	5	+138	+ 4	+273	32	+51	2170	+44	173	
l. Oper.		84	−297	14	+189	+ 8	+294	36	+54	5820	+80	320	
atchman	Golf	90	−325	13	+185	+ 4	+273	48	+61	4120	+58	252	
alesman		94	−341	23	+232	+12	+317	10	+27	2600	+48	283	
lerk	Golf, Basebl.	104	−377	6	+146	+ 8	+294	28	+47	4350	+61	171	
ainter		120	−393	6	+146	0	+251	26	+45	2380	+47	96	
ainter		84	−297	17	+202	−12	+200	50	+62	4320	+61	228	
ngineer		90	−325	24	+239	− 4	+233	18	+36	3240	+52	235	
lerk		86	−308	20	+217	−12	+200	36	+54	4540	+64	227	
hauffeur	Golf, Basebl.	90	−325	10	+170	+ 8	+294	24	+43	4530	+64	246	
alesman	Golf, Basebl.	90	−325	23	+232	−16	+183	36	+54	5390	+76	220	
alesman		100	−363	14	+189	− 4	+233	52	+64	5170	+72	195	
nempl.	Golf, Basebl.	92	−333	27	+252	− 4	+233	28	+47	5390	+76	275	
tudent	Golf, Basebl.	86	−308	9	+166	− 8	+214	56	+66	2600	+48	186	
aborer		84	−297	20	+217	0	+251	28	+47	5200	+73	291	
est. Elec.		100	−363	19	+211	+ 8	+294	30	+49	4100	+58	249	
arber		100	−363	18	+206	+ 4	+273	64	+70	4320	+61	247	
l. Oper.		88	−316	23	+232	− 4	+233	26	+45	3890	+57	251	
otorman		80	−278	15	+194	0	+251	26	+45	3890	+57	269	
lerical		96	−347	15	+194	+ 8	+294	30	+49	3240	+52	242	
aborer	Golf	94	−341	10	+170	+ 4	+273	20	+39	3020	+50	191	
.W.A.		100	−363	8	+159	−12	+200	20	+39	2590	+48	83	
emonstr.		86	−308	14	+189	+ 4	+273	42	+57	4960	+69	280	
alesman		90	−325	22	+228	− 8	+214	32	+51	5640	+78	246	
ainter		100	−363	8	+159	+ 8	+294	20	+39	2160	+44	173	

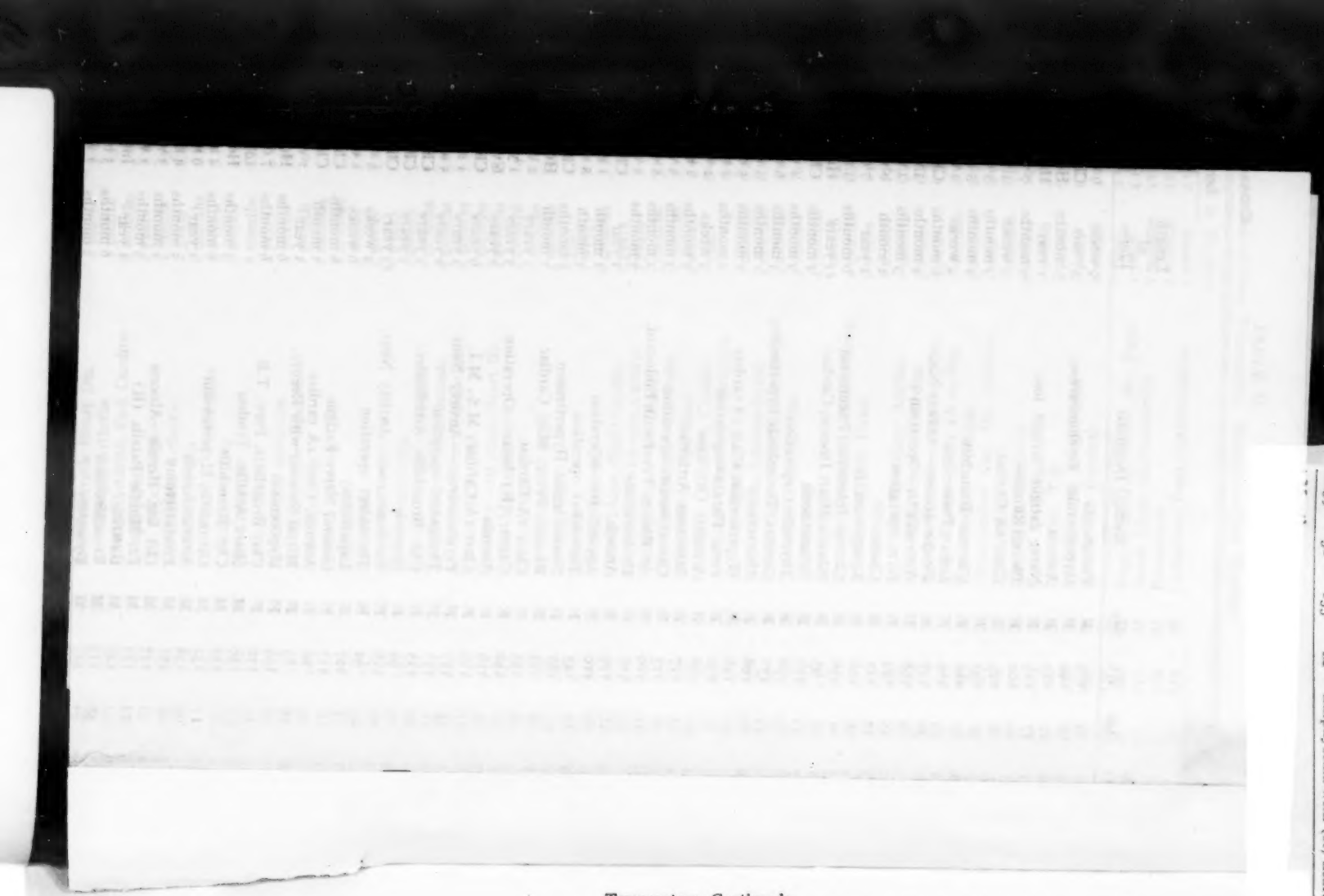
Temperature Centigrade

TABLE X

CORRECTION OF VITAL CAPACITY MEASUREMENTS OF BODY TEMPERATURE*

Liters

Temperature Centigrade	8.	7.5	7.	6.5	6.	5.5	5.	4.5	4.	3.5	3.	2.5	2.	1.5	1.	.5
36°	.05	.05	.04	.04	.04	.03	.03	.03	.02	.02	.02	.01	.01	.01	0.	0.
35	.11	.10	.09	.09	.08	.07	.07	.06	.05	.05	.04	.03	.03	.02	.01	.01
34	.16	.15	.14	.13	.12	.11	.10	.09	.08	.07	.06	.05	.04	.03	.02	.01
33	.20	.19	.18	.16	.15	.14	.13	.11	.10	.09	.08	.06	.05	.04	.03	.01
32	.25	.24	.22	.21	.19	.17	.16	.14	.13	.11	.10	.08	.06	.05	.03	.02
31	.30	.28	.26	.24	.22	.21	.19	.17	.15	.13	.11	.09	.07	.06	.04	.02
30	.34	.32	.30	.28	.26	.24	.22	.19	.17	.15	.13	.11	.09	.06	.04	.02
29	.39	.36	.34	.32	.29	.27	.24	.22	.19	.17	.15	.12	.10	.07	.05	.02
28	.43	.40	.38	.38	.32	.30	.27	.24	.22	.19	.16	.13	.11	.08	.05	.03
27	.47	.44	.41	.38	.35	.33	.30	.27	.24	.21	.18	.15	.12	.09	.06	.03
26	.51	.48	.45	.42	.38	.35	.32	.29	.26	.22	.19	.16	.13	.10	.06	.03
25	.55	.52	.48	.45	.42	.38	.35	.34	.28	.24	.21	.17	.14	.10	.07	.03
24	.59	.56	.52	.48	.44	.44	.37	.33	.30	.26	.22	.19	.15	.11	.07	.04
23	.63	.59	.55	.51	.47	.43	.39	.35	.32	.28	.24	.20	.16	.12	.08	.04
22	.67	.63	.58	.54	.50	.46	.42	.38	.33	.29	.25	.21	.17	.13	.08	.04
21	.70	.66	.62	.57	.53	.48	.44	.40	.35	.31	.26	.22	.18	.13	.09	.04
20	.74	.69	.65	.60	.56	.51	.46	.42	.37	.32	.28	.25	.19	.14	.09	.05
19	.78	.73	.68	.63	.58	.53	.48	.44	.39	.34	.29	.24	.19	.15	.10	.05
18	.81	.76	.71	.66	.61	.56	.51	.46	.40	.35	.30	.25	.20	.15	.10	.05
17	.84	.79	.74	.59	.63	.58	.53	.47	.42	.37	.32	.26	.21	.16	.11	.05
16	.88	.82	.77	.71	.66	.60	.55	.49	.44	.38	.33	.27	.22	.16	.11	.05
15	.91	.85	.80	.74	.68	.63	.57	.51	.45	.40	.34	.28	.23	.17	.11	.06
14	.94	.88	.82	.77	.71	.65	.59	.53	.47	.41	.35	.29	.24	.18	.12	.06
13	.97	.91	.85	.79	.73	.67	.61	.55	.49	.43	.37	.31	.25	.19	.13	.06
12	1.00	.94	.88	.82	.75	.69	.63	.56	.50	.44	.38	.31	.25	.19	.13	.06
11	1.04	.97	.91	.84	.78	.71	.65	.58	.52	.45	.39	.32	.26	.19	.13	.06
10	1.07	1.00	.93	.87	.80	.73	.67	.60	.53	.47	.40	.33	.27	.20	.13	.07
9	1.10	1.03	.96	.89	.82	.75	.69	.62	.55	.48	.41	.34	.27	.21	.14	.07
8	1.13	1.06	.98	.91	.84	.77	.70	.63	.56	.49	.42	.35	.28	.21	.14	.07
7	1.15	1.08	1.01	.94	.87	.79	.72	.65	.58	.51	.43	.36	.29	.22	.14	.07
6	1.18	1.11	1.04	.96	.89	.81	.74	.67	.59	.52	.44	.37	.30	.22	.15	.07
5	1.21	1.14	1.06	.99	.91	.83	.76	.68	.61	.53	.45	.38	.30	.23	.15	.08
4	1.24	1.16	1.09	1.01	.93	.85	.78	.70	.62	.54	.47	.39	.31	.23	.16	.08
3	1.27	1.19	1.11	1.03	.95	.87	.79	.71	.63	.56	.48	.40	.32	.24	.16	.08
2	1.30	1.22	1.13	1.05	.97	.89	.81	.73	.65	.57	.49	.41	.32	.24	.16	.08
1	1.32	1.24	1.16	1.08	.99	.91	.83	.74	.66	.58	.50	.41	.33	.25	.17	.08

Read the temperature of the water in the spirometer. Note the volume of air registered. Add the number of liters indicated where the two coordinates meet. For example, at a temperature of 20° C., if the instrument registered 5.5 liters, add .51, making a total of 6.01 liters.

* C. H. McCloy, "The Spirometer as an Instrument of Precision," *Amer. P. E. Review*, XXXII (May, 1927), 323–327. Table used by permission of the Author.

A Unit Plan of Instruction as Employed in the Professional Preparation of Teachers in Health and Physical Education at the Rice Institute

By Harry A. Scott, Ph.D.
The Rice Institute

THOSE who have been engaged in teaching on the higher educational levels will appreciate the fact that there is an apparent lack of efficiency in the average curriculum arrangement. The professional curriculum in health and physical education, as in other specialized fields, like Topsy, has just "growed." Administrators have been reluctant to drop conventional subject matter from the course of study because of the uncertainty of the direction in which the profession is going and the failure of any particular school of thought to dominate the curriculum. In all fields of higher education the general practice has been, when in doubt, add a course; hence the multiplicity of courses.

As an outgrowth of this unorganized development of the curriculum it is quite possible that a considerable quantity of the subject matter now taught to professional students in health and physical education is irrelevant. By the same token new things should be taught. New conditions require new viewpoints. It is this attempt to keep abreast of the times which impels the administrator to add courses to the already overburdened professional curriculum. It would seem that, in the future, scientific investigation should determine the nature of the professional curriculum rather than the trial-and-error methods which have heretofore been employed.[1]

The current administrative set-up which divides the school year into semesters or terms very often adds to the confusion. This factor, together with poor teaching, lack of a thorough grasp on the subject matter being taught, the current idea that men students need one type of professional preparation and women another, and other things too numerous to mention, result in a wasteful duplication of subject matter. The necessity of continuing a course to the end of the term or semester, ofttimes coupled with exaggerated ideas as to the credit value of courses, results in much padding with irrelevant material. Not infrequently poor teaching methods cause much time to be wasted in endless, uninteresting, and meaningless discussion in an effort on the part

[1] The College Physical Education Association is now engaged in such a study through a committee of which Dr. E. C. Davis of Pennsylvania State College is Chairman.

of the instructor to hold out at all costs until the end of the term; a sorry example to set for embryo teachers.

The current practice of limiting the period of professional preparation to the last two years in college is, in the opinion of the writer, wasteful when the student is considered. If a student is going to enter the professional study of health and physical education it would seem that the sooner he begins to think in terms of his professional field, the better. By so doing he is capable of guiding all of his activities in such a manner as to enhance his professional career.

IT IS the firm conviction of the writer that the purpose of professional preparation in the undergraduate school is generalization rather than specialization. Excepting in the field of motor skills the place for specialization is in the graduate school. In the subject-matter fields the undergraduate student should receive a broad cultural and scientific foundation. In the field of motor activities he should specialize in and excel in as many sports as possible, consistent with his ability to meet all of his other requirements. In addition he should be able to perform better than average in a great many motor activities. He must also be conversant with the whole field of organized motor skills. Since motor activity is the unique contribution of physical education to general education we must see that professional students possess unusual skills in this field.

Unfortunately, in some institutions extreme departmentalization, the foe of unified effort, causes the professional preparation of teachers in health and physical education to be placed in the hands of one department while another department takes care of the required physical education courses for the general student body. Very often, too, the intercollegiate athletic program is in the hands of still another group. This scheme of organization results in a wide diversity of practices, many of which are contrary to the accepted theoretical conceptions of the place of health and physical education in the general scheme of education. The young teacher in preparation is confused as to the proper path to follow. His theoretical conceptions of the field clash with his actual experiences. If he is a thinking person he cannot fail to notice the inconsistencies in such a situation. To accomplish the business of professional preparation thoroughly every phase of the entire university health and physical education program must carry out in minute detail the theories which are propounded in the subject-matter classes. Departments of health and physical education doing teacher-training work must engage in the same kind of practices which they expect their students to follow.

IN THE light of the above factors the professional curriculum at The Rice Institute has been developed to eliminate, to some extent at least, the weak parts of the conventional curriculum, and to enhance the

good features, of which there are many. Courses have been arranged on a unit plan without reference to mid-year term endings. The length of a unit is determined by the nature and relative importance of the subject matter involved, but in all cases only enough time is allotted to it to complete the necessary material. Thus, the length of a unit is flexible enough to take into consideration not only the nature and importance of the subject matter but the learning rate of the class as well. If a class is capable of learning rapidly or slowly the length of the unit is shortened or lengthened accordingly. For practical purposes, however, the school year is divided into six five-week periods, and a unit usually is regarded as either five, ten, or fifteen weeks in length.

In the unit plan the instructor best fitted to teach the subject is assigned to do the job. Hence the students have the advantage of receiving instruction from the one on the staff who knows the most about the subject under consideration. There is no unnecessary duplication of subject matter and the instructor is not tempted to pad the course with irrelevant material in order to extend it beyond the limits of normal requirements.

In the curriculum arrangement there is one professional lecture course in health and physical education offered in each of the four years. In addition the student is required to carry four other courses each year. This professional course meets three times a week. Also, as a part of the professional lecture course, each student must spend six clock hours a week under instruction acquiring some form of motor skill. This instruction in activities is regarded in the nature of a laboratory course, and is required of all students. All laboratory units are five weeks in length and meet six clock hours a week as a minimum requirement. In cases where the student is satisfying a laboratory unit by participation on a varsity squad the actual time is much greater. In the junior or senior year the student is required to teach and observe under supervision for forty-five clock hours in one of the Houston public schools.

In order to determine the nature and amount of work required in the laboratory course a departmental credit value of two points is given for the successful completion of each five-week unit. These are designated as laboratory credits. Since there are six five-week units in a school year the student must earn a minimum of twelve laboratory credits a year, or a total of forty-eight for the four years. Of these forty-eight credits, forty are in prescribed activities; the additional eight may be earned by electing other activities (see below). While each student is obligated to meet the minimum requirement of forty-eight laboratory credits, the actual number of credits earned, if computed, would be much greater since more time is necessarily spent in activities than is represented by departmental laboratory credit. The natural interest of the student in desiring to excel in a wide variety of activities carries him far beyond the credit requirements.

The following course and laboratory summary will show the details of the curriculum arrangement that has been discussed:

Course Content	*Approximate Duration of Unit*
Physical Education 100.—I. Vocational Analysis of the Field of Health and Physical Education (Orientation)	5 weeks
II. The Meaning of Health and Physical Education (Orientation)	10 weeks
III. Scientific Foundations of Health and Physical Education (A survey of the various types of scientific knowledge required.) (Orientation)	5 weeks
IV. History of Physical Education	10 weeks
Other courses: Chemistry, English, Foreign Language, and Economics	
Physical Education 200.—I. Playground and Community Recreation	5 weeks
II. Foundation of Method in Health and Physical Education (Introduction to the essential facts of psychology, sociology, and education with special reference to the problem of method)	10 weeks
III. Fundamentals of Health and Physical Education (Beginning anatomy and personal hygiene)	15 weeks
Other courses: Biology (general), English, Foreign Language, and Business Administration	
Physical Education 300.—I. Supervision of Instruction	2 weeks
II. Tests and Measurements in Health and Physical Education	10 weeks
III. Body Mechanics	10 weeks
IV. Individual Physical Education	8 weeks
Other courses: Anatomy and Physiology, including Physiology of Exercise, Education, and two electives, usually Psychology and Sociology	
Physical Education 400.—I. Principles and Programs of Physical Education	15 weeks
II. Methods in Organization and Administration of Physical Activities, e.g., swimming meets, track meets, intramural athletics, etc.	5 weeks
III. Principles and Programs of Health Education	10 weeks
Other courses: History (government), Education, Public Health and Sanitation (including bacteriology, immuniology, normal diagnosis and care and treatment of common injuries), and one other subject.	

NOTE: Fifteen weeks of practice teaching must be completed in the junior or senior year. Prerequisite: (*a*) full junior standing, (*b*) satisfactory completion of the laboratory units in soccer and speedball, tumbling and stunts, and the indoor program of physical education.

LABORATORY REQUIREMENTS FOR PHYSICAL EDUCATION 100, 200, 300, and 400

Physical Education 100, 200, 300, and 400 each require a laboratory course of instruction designed to teach motor skills and methods of instruction in a wide variety of activities. In order to fulfill the requirements for graduation a total of forty-eight laboratory credits must be earned in four years. Forty of these credits must be earned in the *activity units* enumerated below; the remaining eight credits may be earned in any activity shown on the accompanying laboratory schedule.

8 credits in football
8 credits in basketball
8 credits in track
4 credits in baseball
2 credits in swimming and life saving
2 credits in handball and volleyball
2 credits in soccer and speedball
2 credits in tumbling and stunts
2 credits in indoor program of physical education
2 credits selected from the following:
a) Tennis
b) Golf
c) Boxing
d) Wrestling
e) Fencing

An activity unit consists of a minimum of six clock hours a week for a period of five weeks. Two laboratory credits may be earned for each activity unit. Each student is responsible for adjusting his own program so that the credit requirements are fulfilled. He is responsible for all information relative to the dates of the various units, attendance, credits, and other items incidental to the laboratory program.

Laboratory credit is counted toward athletic eligibility, hence a failure in a laboratory unit may cause ineligibility for athletic competition.

LABORATORY SCHEDULE

1. *First Five-Week Period*
   Football
   Cross-Country
   Handball and Volleyball
   Indoor Program of Physical Education
2. *Second Five-Week Period*
   Football
   Cross-Country
   Basketball
   Tumbling and Stunts
3. *Third Five-Week Period*
   Basketball
   Track (Lecture and Practice)
   Speedball and Soccer
   Swimming and Life Saving
   Indoor Program of Physical Education
   Tumbling and Stunts
4. *Fourth Five-Week Period*
   Basketball (Varsity and Freshman)
   Track
   Baseball (Lecture and Practice)
   Handball and Volleyball
   Boxing and Wrestling
5. *Fifth Five-Week Period*
   Football (Lecture and Practice)
   Track
   Swimming and Life Saving
   Tumbling and Stunts

6. *Sixth Five-Week Period*
   - Track
   - Baseball
   - Basketball (Lecture and Practice)
   - Golf
   - Tennis
   - Fencing

NOTE: No attempt is made to segregate students as to classes in school. Freshmen, sophomores, juniors, and seniors may be included in an activity unit.

Present Practices in the Teaching of Archery

By Edith I. Hyde
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At the national meeting of the Association of Directors of Physical Education for College Women, held at Mills College in July, 1932, the Executive Committee decided to undertake as one of their research projects, the measurement of achievement in archery. The results of a preliminary study[1] on this subject were reported at the conference, and the Executive Committee felt that the experiment might be extended with profit among the members of the Association.

It was the consensus of opinion that some revision of the procedure used in the original study would be necessary if the experiment was to prove feasible on a larger scale. With this purpose in view, a questionnaire survey of the present practices in the teaching of archery was decided upon, as the first step in determining the basis for the new measurement procedure.

A questionnaire was formulated and sent to 108 members of the National Association of Directors of Physical Education for College Women, and to 27 additional colleges where archery was known to be a part of the physical education program, as shown by participation in the National Intercollegiate Archery Tournament.

The survey included colleges located in thirty-nine different states, the District of Columbia, and McGill University, Montreal, Canada.

A summary of the response to the questionnaire is given in Table I.

TABLE I
Response to Archery Questionnaire

Section	Members Directors Association	Other Colleges	Total Quest. Sent	Quest. Returned	Per Cent Response
Eastern	52	3	55	36	65
Middle Western	47	8	55	45	82
Western	9	16	25	21	84
Total	108	27	135	102	76

The questionnaires were tabulated during the summer of 1933, and the following report summarizes the results of this part of the study. The questionnaire consisted of fifty-five questions, many of which had

[1] The original study has since appeared in the *Journal of Educational Research*, XXVII: 9 (May, 1934), 673-686.

several alternative responses, or required checking numerous items. All questions required factual answers rather than expressions of opinion. The information requested was grouped under four main headings as follows:

I. Organization of classes and instruction.
II. Archery equipment and facilities.
III. Methods of shooting and instruction.
IV. Additional information.

The replies to the questionnaire will be summarized as briefly as possible under each of the above headings.

RESULTS OF THE SURVEY

The purpose of this part of the study is to present a detailed report of the information supplied by the questionnaire. For this reason, no attempt will be made to discuss the data at length.

Organization of Classes and Instruction.—Since all colleges did not include enrollment data in answering the questionnaire, it was impossible to determine the total number of students in archery classes as compared with the total enrollment in other types of physical education classes.

The results for those colleges submitting enrollment data are given in Table II.

TABLE II
ENROLLMENT OF WOMEN STUDENTS IN VARIOUS TYPES OF PHYSICAL EDUCATION CLASSES

Classification	Number of Students	Number of Colleges
Total enrollment of women students	91,237	97
Total enrollment in physical education	51,458	93
a) In required classes	41,418	93
b) In elective classes	8,611	55
c) In major classes	1,429	63
d) In archery classes	7,189	80

NOTE: Students enrolled in archery are distributed throughout the required, elective, and major classes and are included in these totals.

It may be roughly estimated from the data in Table II, that approximately 13 per cent of all students taking physical education are enrolled in archery classes.

The total number of instructors teaching archery in the 102 different colleges was 195. In 33 colleges one instructor taught all archery classes that were offered. In 69 colleges, more than one instructor taught archery.

The number of archery classes taught by one instructor ranged from 1 class to 20 classes, with an average of 3 classes per instructor. Five instructors each taught 12, 14, 16, 17, and 20 classes respectively. In every other case, no single instructor taught more than 8 classes in

archery. The total number of archery classes offered in the 102 colleges was 540. As previously mentioned, 195 teachers were engaged in this instruction.

Instruction in archery was offered as part of the regular physical education requirement in sixty-five colleges, and by the same number of colleges as a voluntary activity under the Women's Athletic Association. In twenty colleges, enrollment in the archery classes was restricted to students who were physically unable to participate in the regular physical education program.

The number of weeks devoted to archery ranged from two to eighteen weeks with an average season of ten weeks. Seventy-four per cent of the colleges provided instruction in archery for a period ranging from eight to eighteen weeks. In 62 per cent of the colleges, classes met twice a week and in 26 per cent, three times a week. From these data, it was evident that the revised form of the test should be based on a maximum time period of approximately ten weeks where classes are held at least twice a week.

The size of archery classes in the different colleges varied widely. Classes designated as the largest classes ranged in size from eight to thirty-six students, with a median of nineteen students. Those designated as average in size ranged from five to twenty-eight students with a median of fifteen, and classes designated as smallest in size ranged from two to twenty-six students, with a median of nine students. The marked overlapping in the range of the three types of classes designated as large, average, and small is particularly striking.

Beginning and advanced students in archery were enrolled in the same classes in seventy-four colleges, and in separate classes in twenty-seven colleges.

It was found that archery is given greatest emphasis during the spring semester in 75 per cent of the colleges, owing to more favorable weather conditions at this time of the year. However 50 per cent of the colleges offered archery classes during both the fall and spring terms.

The extent to which weather conditions interfere with archery classes varied as follows:

Extent of Time Lost	*No. of Colleges*
Less than one-quarter of the time	32
One-quarter of the time	38
One-half of the time	21
More than one-half of the time	3
Total replies	94

The length of the total class period ranged from 30 minutes to 120 minutes in 100 colleges. Of this number, only 2 colleges had a 2-hour period and 2 a 75-minute period. The remaining 96 colleges had class periods ranging from 30 to 60 minutes with an average class period of 48 minutes. Within the varying class periods indicated, the amount of

time given to actual practice in shooting ranged from 30 to 60 minutes, with an average of 37 minutes.

The number of arrows shot during one class period varied greatly and was not always found to be in proportion to the amount of time allotted to shooting. For example, as many as seventy-two arrows were shot in thirty minutes in some cases, whereas fifteen arrows were shot in sixty minutes in other cases.

The average number of arrows shot by most students during 1 class period, regardless of the length of the class period, ranged from 6 to 144 arrows with a median of 35 arrows. The minimum number of arrows shot during 1 class period ranged from 3 to 72, with a median of 22 arrows.

The approximate number of class periods devoted to preliminary instruction, before the class actually began to shoot, ranged from one-half a class period to eight class periods, with an average of two class periods preceding shooting.

In answer to the question "On which meeting of the class do students start recording their scores?" the range was from the first to the twelfth meeting of the class, the average being on the fifth class period.

Students recorded their own scores in ninety-one colleges, and did not in nine colleges. No information was given as to how or by whom the scores were recorded in the latter case.

The distances shot by beginning students during a season in archery and the order in which these distances were used for instructional purposes are shown in Table III.

TABLE III

DISTANCES SHOT BY BEGINNERS IN ARCHERY AND ORDER OF SHOOTING

Distance	Order of Use					Distance Used	Distance Not Used	Total
	1st	2nd	3rd	4th	5th			
60 yards	..	..	..	2	1	3	99	102
50 yards	3	1	32	27	1	64	38	102
40 yards	5	39	44	1	..	90*	12	102
30 yards	38	55	6	..	..	100*	2	102
20 yards	52	3	1	..	..	56	46	102
10 yards	2	..	..	..	..	2	100	102

* One college indicated that thirty and forty yards were used but did not designate the order.

The above table is to be read as follows: The thirty-yard range is used first by thirty-eight colleges; second by fifty-five colleges; third by six colleges; fourth and fifth by none; and is not used at all by two colleges.

The standard archery rounds shot by beginning students and the number of colleges using each were as follows: Columbia Round by sixty-two colleges, Junior Columbia by six, Junior Metropolitan and National Rounds each by one college. In addition, three colleges indicated that a "modified" Columbia Round was used, and four colleges replied that a round created for their own needs was used. In neither case

were the rounds described. Fourteen colleges replied that no standard rounds were used by beginning students in archery.

In the majority of the colleges where rounds are used as part of the archery course, they are introduced after a considerable period of practice in shooting. Rounds were used by only two colleges at the beginning of the course, and by ten colleges throughout the entire course. In all other cases, they were not introduced until the middle or end of the semester.

Methods of evaluating class work in archery were classified under two headings: (1) practical tests of ability to shoot, (2) written tests of knowledge. Seventy-three colleges indicated that practical tests were given in archery. Fourteen colleges replied that such tests were not given and fifteen colleges did not reply to the question.

The need for more definite, objective, and standardized methods of evaluating proficiency and achievement in archery is well illustrated by the data in the following table. The numerous mentions of scores as a means of evaluating achievement likewise suggests a tendency to attach more faith to this method of measuring skill than to any other.

Table IV gives a résumé of the types of tests described as tests of ability to shoot in archery.

TABLE IV
METHODS OF EVALUATING ABILITY TO SHOOT IN ARCHERY

Method of Evaluation	*No. of Colleges*
1. Teacher's judgment of form in shooting and score	13
2. Ability to demonstrate steps in shooting	10
3. Teacher's judgment of form in shooting only	9
4. Definite skill test, consisting of scores at different distances	8
5. Scores in Columbia Round	8
6. Average of hits and score, daily or at end of season	7
7. Knowledge of equipment and its use	5
8. Effort, attitude, and improvement in form and skill	5
9. Improvement in form and scores	4
10. Best practice score	1
11. Number of hits	1
12. Score during last two weeks	1
13. William Tell Contest and Balloon Shoot	1
14. Scores count 20 per cent. Form counts 80 per cent	1

Written tests were given by seventy-three colleges, not given by eighteen colleges, and no reply was made by eleven colleges. The types of written tests used and the number of colleges using each type were as follows:

Type of Test	*No. of Colleges*
Objective	23
Objective and essay	28
Essay	19
Type not specified	3
Total	73

The material covered in written tests was described under the following headings:

1. History of archery.
2. Technical terminology.
3. Method or technique of shooting.
4. Selection and care of equipment.
5. Scoring.

Other methods of evaluating knowledge and ability in archery indicated were:

1. Book reports.
2. Oral tests on terminology and equipment.
3. Tournament shooting.
4. Ability to teach archery (for major students only).
5. Proficiency test (content not specified).

Of the colleges giving a practical or performance test, over 50 per cent indicated that the tests were given at the end of the term. Over 73 per cent gave the written tests at the end of the semester, 13 per cent gave written tests on rainy days when outdoor work was impossible, 11 per cent gave tests both in the middle and at the end of the semester, and 2 per cent gave written tests in the middle of the semester.

Archery Equipment and Facilities.—This part of the questionnaire requested not only detailed information as to the amount and kind of archery equipment, but also sought information regarding procedures in use where equipment and facilities were inadequate to meet the needs of the archery classes.

The information obtained regarding the kinds of bows and arrows used in the various colleges is of particular interest because of the variety of materials indicated and the wide range in price for equipment made from the same kind of material.

Table V gives a summary of the data obtained from ninety-eight colleges with regard to the types of bows used and their respective costs.

The number of each kind of bow was not requested on the questionnaire, so that it was impossible to determine the extent to which one kind of bow predominated in use in any college. In addition to the

TABLE V

KINDS OF BOWS USED AND APPROXIMATE COST

Kind of Bow	Number Colleges	Range in Cost	Average Cost
Lemonwood	91	$3.00—$15.00	$ 7.50
Backed	16	$5.00—$20.00	$10.00
Yew	14	$4.00—$25.00	$10.00
Hickory	10	$3.75—$10.00	$ 5.50
Steel	10	$3.50—$25.00	$ 8.75
Osage Orange	7	$8.00—$15.00	$10.00
Ash	3	$2.50—$ 8.00	$ 6.00

bows listed above, four other kinds of bows were indicated once each. These were: bamboo, palma-brava, tulip, and oak.

Table VI gives a similar summary of the data obtained with regard to the types of arrows used in the same colleges.

TABLE VI

KINDS OF ARROWS USED AND APPROXIMATE COST PER DOZEN

Kind of Wood		Number Colleges	Range in Cost	Average Cost
Cedar	Self	36	$ 3.00—$12.00	$ 5.75
	Footed	13	$ 4.00—$24.00	$10.00
Pine	Self	33	$ 1.50—$12.00	$ 5.25
	Footed	15	$ 6.50—$30.00	$10.00
Birch	Self	20	$ 2.50—$ 9.00	$ 4.50
	Footed	1	$ 5.25	
Spruce	Self	8	$ 2.00—$ 7.00	$ 4.50
	Footed	1	$10.00	
Fir	Self	4	$ 3.75—$ 6.00	$ 5.00
	Footed	1	$ 9.00	

Analysis of the above data regarding the kinds of equipment used by the colleges included in the survey suggests two conclusions which are important in considering the measurement of achievement in archery.

First, the variety of materials used in bows and arrows indicates a lack of uniformity that would result in a wide variation in achievement due to this factor alone.

Second, the use of an archery test based on standardized practice procedure suggests a possible means of evaluating the efficiency of various kinds of equipment. The need for such evaluation is suggested by the wide range in price for equipment made from not only the same materials, but from different materials. While the cost of equipment is often a misleading and unreliable criterion of its quality and efficiency, it is nevertheless the only one short of actual performance in use. Judging from the results of the survey, some colleges are using equipment of such inferior quality that achievement would be necessarily limited under the most favorable program of instruction and practice. The upper limits of the price range suggest the possibility that other colleges are paying more for equipment than would be warranted if its efficiency were tested.

The weight of bows used in the colleges varied widely. Bows ranged in weight from twelve to forty-four pounds with an average weight of twenty-six pounds. Fifty per cent of the bows used were from twenty-three to twenty-nine pounds in weight, while 25 per cent were thirty pounds or over in weight, and 25 per cent were twenty-two pounds or less in weight. The distribution of bows of each weight is shown in Table VII.

The greatest number of bows provided by a single institution was fifty, and the smallest number was two. The average number of bows provided was fifteen. Fifty-two per cent of the colleges had from ten to nineteen bows, 23 per cent had less than ten bows and 25 per cent had more than thirty bows.

TABLE VII

FREQUENCY OF THE WEIGHTS OF BOWS USED

Weights	Number of Bows
44–45	2
42–43	0
40–41	3
38–39	9
36–37	11
34–35	36
32–33	63
30–31	126
28–29	210
26–27	271
24–25	303
22–23	179
20–21	140
18–19	89
16–17	14
14–15	5
12–13	1
Total Number of Bows	1,462
Median Weight	26 pounds

Thirty-eight colleges indicated that indoor archery ranges were available for use when weather conditions made outdoor shooting impossible. The maximum distance of such ranges varied from 40 feet to 180 feet with an average distance of 60 feet, or 20 yards.

In sixty-two colleges where no indoor archery range was available the following activities were listed for the class periods when weather conditions were unsatisfactory for outdoor shooting:

1. Lecture and discussion of archery technique, history of archery, selection and care of equipment, and tournament procedure.
2. Reading assignments on archery.
3. Written examinations.
4. Instruction and practice in repairing equipment.
5. Making score cards.
6. Participation in other activities such as folk dancing, deck tennis, modified games, volleyball, and other games.

The replies indicated that in 60 per cent of the colleges, there was a bow for each member of the class at all times. In situations where there were not enough bows for each member of the class, the replies indicated that from two to five students were assigned to each bow

during the same class period. However, in most cases not more than two students used the same bow during one class period.

A slightly larger number of colleges provided a complete set of six arrows for each student at all times, than in the case of bows. In colleges where there were not six arrows for each student at all times, the following procedures were used to meet the difficulty.

1. Two students are assigned to each set of arrows and alternate in shooting them in nineteen colleges.
2. Each student uses three arrows instead of six in sixteen colleges.
3. Students buy their own arrows in two colleges.

Armguards and finger tips for protection in shooting were used by 70 per cent and 86 per cent of the colleges respectively. Within this group, a small proportion of colleges indicated that such equipment was recommended but was not used by all of the students.

The number of targets available in the different colleges ranged from one to twelve, the average number being three. In 95 per cent of the colleges, the standard forty-eight-inch target face was used. The number of students assigned to shoot on one target at the same time ranged from one to twelve, with 56 per cent of the colleges having one target for every four or five students.

Over 80 per cent of the colleges have an archery range which is permanently marked so that the distances are the same at all times. Where the range is not permanently marked, the following procedures were indicated:

1. Distances are paced off in seven colleges.
2. Distances are estimated from previously measured landmarks in four colleges.
3. Distances are measured each time in three colleges.
4. Temporary stakes and ropes are used in two colleges.

Methods of Shooting and Instruction.—Many different methods of shooting are used throughout the country. These were identified as described by the authors of recognized books on archery who are considered authorities on the subject. Table VIII shows the frequency of the various methods of shooting as described by these writers.

TABLE VIII

METHODS OF SHOOTING USED BY 101 COLLEGES, AS DESCRIBED BY LEADING AUTHORITIES ON ARCHERY

Name of Authority	No. of Colleges
Rounsevelle	63
Elmer	25
Sumption	19
Lambert	18
Seay (Relaxed Method)	12
Combination of Two or More Methods	37

In addition to the methods of shooting included in Table VIII, nine others were indicated for which no authority was given, or for which no written description was available that might be quoted.

Other data regarding methods of instruction and shooting may be briefly summarized in the following statements.

In eighty-one colleges, all instructors within the same institution use the same method of shooting. In seven colleges, different instructors use different methods of shooting within the same college.

Methods of teaching procedure vary among different instructors in the same institution more than do methods of shooting. Twelve colleges indicated that different instructors followed different teaching procedures whereas seventy-eight colleges replied that all instructors followed the same procedure in teaching archery.

The use, by beginning students in archery, of mechanical aids in shooting, such as artificial points of aim or other aiming devices, was indicated by 67 per cent of the colleges.

In general, it may be concluded that there is a high degree of uniformity within the various colleges regarding both methods of shooting and the teaching procedures used in presenting the activity.

Additional Information.—This part of the questionnaire requested miscellaneous data unrelated to the previous sections of the survey. The purpose was to ascertain the general attitude of the various colleges with regard to a measurement project in archery, and their willingness to cooperate in such an experiment. The nature of this information and the replies may be summarized as follows:

Questions	*Yes*	*No*	*Total Replies*
1. Are you interested in the experiment to establish standards of achievement in archery?	94	3	97
2. If requested, would you be willing to carry on the experiment in your college?	89	4	93
3. Are recent mental test scores available for students enrolled in archery classes?	48	40	88
4. If not available would it be possible to obtain mental test scores for these students?	26	11	37
5. Would you like to have a report of the archery survey?	97	2	99

The information regarding mental test scores for students in archery classes was requested with a view to further investigation of the relationship between mental ability and achievement in archery.

In addition to replying to the questionnaire, fifty-one colleges submitted sample score cards used for archery classes.

The generous cooperation and interest expressed by the response to the archery questionnaire is indicative of the favorable attitude toward experimental work in measurement in the field of physical edu-

cation. Many of those who responded expressed a special interest in the project, and seemed to feel that a standardized test in archery, with a series of norms of achievement, would contribute to the greater satisfaction of both students and teachers of archery.*

APPENDIX

NATIONAL ASSOCIATION OF DIRECTORS OF PHYSICAL EDUCATION FOR COLLEGE WOMEN

Survey of

Present Practices in the Teaching of Archery

Edith I. Hyde

University of California at Los Angeles

Name of University or College.....

Location: City..... State.....

Dates of the beginning and end of semesters or quarters:

	Beginning: Month	Day	End: Month	Day
1—				
2—				
3—				
4—				

Total enrollment of women students.....

Total enrollment of women in physical education.....

1—In required classes..... 2—Elective..... 3—Majors.....

Organization:

Name of instructor in charge of archery.....

Number of archery classes you teach.....

Other instructors teaching archery:	Number of Archery classes each teaches
1—	
2—	
3—	

Check (√) the conditions under which archery is given in your institution and give the following information in each case:

	Check Type	No. of Classes	Enrollment 1932–1933	Length of Season in Weeks	No. of Times Class Meets Weekly
1—Part of regular physical education requirement					
2—Part of W.A.A. program					
3—Elective activity open to all students					
4—Restricted to students taking modified work					
5—Other classifications: (Such as Teams, etc.)					

Size of smallest class..... Largest class..... Average class.....

* The writer wishes to express her appreciation to the members of the National Association of Directors of Physical Education for College Women, for their cooperation in responding to the archery questionnaire; and to Dr. Ruth Elliott, Wellesley College, for the opportunity to make the survey under her administration, as President of the Directors' Association. Special acknowledgment is also due Dr. J. Harold Williams, Professor of Education at the University of California at Los Angeles, for helpful advice and assistance in tabulating the results and preparing the report.

*Are beginning and advanced students enrolled in the same class? (Yes) (No)
Are beginning and advanced students enrolled in separate classes? (Yes) (No).
Do all instructors use the same method of shooting? (Yes) (No).
Do all instructors use the same method of teaching? (Yes) (No).
Underline the time during the year when archery is given greatest emphasis:
Fall, Spring, Winter. All year activity.
How long is the entire class period in archery?.....
How many minutes during each class period are given only to shooting?.....
What is the average number of arrows shot by most students during one class period?..... Minimum number.....
Approximately how many class periods are given to preliminary instruction before the class actually begins to shoot?.....
On which meeting of the class do students start keeping a record of their score?
.....
Do students record their own scores? (Yes) (No).
Underline the distances that beginning students shoot during a season in archery.
20 yds. 30 yds. 40 yds. 50 yds. 60 yds.
Number the above distances in the order in which you use them for instructional purposes.
Give the names of the Rounds, if any, that your beginning classes in archery shoot
.....
Underline the time during the semester or quarter when these Rounds are usually shot: Beginning Middle End Throughout the semester.
Underline the extent to which weather conditions interfere with archery classes in your particular situation:
Less than one quarter of time. One half of the time.
One quarter of the time. More than one half of the time.
Check the kind of costume required for archery classes:
1—Regulation gymnasium costume.....
2—Sport clothes and street shoes.....
3—Any other requirement.....
Indicate the methods you use for evaluating class work in archery:
1—Practical tests? (Yes) (No).
(a) Type of test used? (Describe briefly).....
.....
(b) When is the test given?.....
2—Written tests? (Yes) (No).
(a) Type of test (such as, essay type on history, methods of shooting, etc.; or objective, such as, true-false, completion, etc.)
.....
(b) When is the test given?.....
3—Any other method:.....
Equipment:
Do you have an indoor archery range? (Yes) (No).
What is the maximum distance possible on the indoor range?.....
If there is no indoor range, what do archery classes do when it is impossible to shoot outside? .....
Is there a bow for every student in the class at all times? (Yes) (No).
If not, how many students are assigned to each bow in the same class period?....
Is there a set of six arrows for each student at all times? (Yes) (No).
If not, what do you do?.....
Underline the following "weights of bows," and give the number of bows of each weight that you use: (Add any weights not given).

* Circle "Yes" or "No" which follows the question.

Weight of bow. (Lbs.) 18 20 22 24 26 28 30 32 34 36
No. of bows .....

Underline the type of bows used, and give the approximate cost of each type: (Add any not listed).
Kind of bow Yew Lemonwood Ash Hickory Osage-Orange Backed
Approx. cost ....

Underline the kind of arrows used, and give the approximate cost of each per dozen. (Add any not listed).
Kind of wood Cedar Pine Spruce Birch Fir
Approx. cost per dozen ....
Self ....
Footed ....

Do students use finger tips? (Yes) (No).
Do students use armguards? (Yes) (No).
How many targets are available?.....
What size are they? (Give diameter in inches).....
How many students shoot on one target at the same time?.....
Underline the direction which the targets most nearly face:
North South East West
Is the archery range permanently marked so that distances are the same at all times? (Yes) (No).
If not, what do you do about it?.....

Method of Shooting:

Underline the method of shooting which you use, as advocated or described by the following authorities: (Add any others).
Elmer, Lambert, Rounsevelle, Seay (Relaxed method). Sumption.
Other methods or combinations: .....
Do beginning students use artificial points of aim or other sighting devices for shooting? (Yes) (No).
Do beginning students use range finders for locating point of aim? (Yes) (No).

Additional Information:

Are recent mental test scores available for students enrolled in archery classes? (Yes) (No).
If so, give the name of the mental test.....
If not available, would it be possible to obtain mental test scores for these students? (Yes) (No).
Are you interested in the experiment to establish standards of achievement in archery? (Yes) (No).
If requested, would you be willing to co-operate in carrying on the experiment in your own college? (Yes) (No).
Would you like to have a report of the present practices in the teaching of archery as determined from this questionnaire? (Yes) (No).
Please inclose a sample of the score card that you use for archery.

Signed .....
Position or title.....
Date of answering.....

Please return this questionnaire in the self-addressed envelope to:
Miss Edith I. Hyde,
Department of Physical Education for Women,
University of California at Los Angeles,
405 Hilgard Avenue,
Los Angeles, California.

Remarks:

The Inadequacy of Strength Norms

By C. H. Griffitts

Associate Professor of Psychology
University of Michigan

MUSCULAR strength is an aspect of the human organism in which people working in several different fields are interested. Supposed tests of strength have been used in selecting employees, in balancing athletic teams for intramural competition, in studies of health in general and of nutrition in particular, in studies of the effect of exercise, in studies of fatigue, in studies of temperament, in studies of the development of children, and in studies of a more nearly pure physiological nature. It is very probable that measures of strength will be taken in a much larger number of investigations when more satisfactory tests are devised and adequate norms are available.

In spite of the large number of investigators who have used strength tests for one reason or another, it is still difficult to find adequate norms. It is not difficult to find a test that is labeled as a test of strength. But after we use one and find an individual's score, we are likely to want to know what his strength "should be," and here we run into trouble. The strength of grip as measured by a variety of dynamometers has been used more than anything else. But in spite of this about all we can find in the way of norms are tables showing the average grip for children of different ages. No provision is made for making allowances for differences in size among children of the same age. About the best we can do is to turn to other tables and find the average age of children of the same size as the child we have, and then get the average grip of children of this other age. But this procedure is unsatisfactory for general use, because it assumes that the strength should be the same for children of the same size, irrespective of age.

A more rational procedure than using a test and then trying to find norms is to choose a test in the beginning for which more adequate norms are available. If we do this our choice would appear to lie between Rogers' Strength Index and Martin's tests.

Rogers gives the average (normal) strength indices and average weight for each age, and also, for each age, a "weight deviation multiplier" for taking into account any difference between an individual's actual weight and the average weight for his age. In computing these "weight deviation multipliers" he assumed that ideally there should be a perfect correlation between weight and strength, and therefore determined the weight deviation multiplier for each age by dividing the inter-quartile range in "strength" by the inter-quartile range in weight. Other

parts of Rogers' statistical procedure which might possibly be questioned are those where he thought it better to sacrifice some precision for the convenience of those who use his tests.

The main objection to Rogers' "Strength Index" by those who want a measure of strength as such is that it is not, strictly speaking, a specific measure of strength. Vital capacity is included in the scores that are combined to get the Strength Index. Including vital capacity may not decrease, and may increase the value of the Index for some purposes; but it destroys its value as a specific measure of strength. Rogers could increase the value of his work a great deal for some of us if he were to do separately for each of the eight items that go to make up his Index what he has done for the Index as a whole. Martin, in a way, has done this by giving the ratio of the strength of each muscle to the total strength of his forty-two muscles.

Martin's interest in the after-care of infantile paralysis cases led him to develop procedures for testing the strength of twenty-one pairs of muscles. He and his collaborators give averages or norms for "Total Strength" of different ages and sexes, and also a value for each muscle, obtained by dividing the strength of that muscle by the "Total Strength." This makes it possible for anyone to choose a few of the muscles, if he does not have the time to test all of them, compute the "Calculated Total Strength" of each individual and then turn to the tables to find what the strength of the individual should be. Martin does not give, directly, a system for determining what any individual's "Total Strength" should be, which would take both his size and age into account. But he has made it possible to do this in something of a round-about way, by dividing the "Total Strength" by weight and giving us the average strength/weight ratio for different ages and sometimes separately for the two sexes. By multiplying a boy's weight by the strength/weight ratio for his age we can see what his strength should be for his weight; and by referring to Martin's tables we can see what his strength should be for his age. Then we must use common-sense in interpreting what we find. We may find that he is normal for his age but not for his weight, normal for his weight but not for his age, normal for both, or not normal for either; and with any of these possibilities, he may be overweight or underweight for his age.

It is a question as to how far we ought to try to go at the present time in the way of computing a combined score. The main objection to combining several things or aspects of the same thing in a single score is that very diverse individuals receive the same score.

If we do wish a combined score, after giving Martin's tests, we can do something which is somewhat analogous to Rogers' use of "weight deviation multipliers." Suppose, for example, a boy is 16 years old, and has a "Total Strength" of 2,450 lbs. The average "Total Strength" of 16-year-old boys is 2,380 lbs., and the average strength/weight ratio is

21.1. We can multiply the 20 lbs. (the amount overweight) by 21.1 which gives 422 pounds. Then we can add this to 2,380 (the average strength for his age) which gives us 2,802 lbs., which we can regard as the strength he should have for his age and weight. So we can say that his strength is 2,450 pounds, but should be 2,802. Also that he is stronger than the average boy of his age, but not as strong as the average boy with his weight.

Whether we compute this combined score or not should depend upon what we want. If we want to estimate or predict what the actual strength of the individual is most likely to be, our combined (or corrected) score may be too high, because some of this extra weight is likely to be useless or worse than useless fat. On the other hand, if we are interested more in the general condition of the individual, this final value, which has been corrected for weight-deviation, may be of value. If, for example, the calculated normal strength is considerably higher than the actual measured strength and the individual is overweight, it is probable that he is fat or soft and needs to change his diet in kind or amount, get more exercise, or both. He may be ill. In any event, we must not use any such procedures blindly. We must not forget, for example, that strength per pound of weight is somewhat higher for those who are underweight for their age than it is for those who are overweight.

We come now to a consideration of the disturbing problem which arises when we compare Martin's strength/weight ratios with Rogers' "weight deviation multipliers." It will be remembered that the procedure we have been discussing involves the subtraction of the average weight for the sex and age from the individual's weight, multiplying the difference by the strength/weight ratio (strength per pound of body weight) for that sex and age, and then adding or subtracting, as the case may be, this product from the norm given for the sex and age. This, of course, is correcting the norm given for the sex and age to allow for the amount by which an individual is over- or underweight, and is much the same as what we do when we use Rogers' "weight deviation multipliers" in connection with Rogers' norms. The situation will be more easily seen if we place these values side by side. This has been done in Table I. Martin computed his S/W ratios by using the averages for each age, with no adjustments. Rogers obtained his "weight deviation multipliers" by smoothing the curve and then reading from the curve the values given in the table.

We should not expect the two sets of values to be the same, even if both were based solely on strength and weight measurements. If Martin had used fewer muscles, his S/W ratios would be lower, and if he had measured the strength of more muscles his S/W ratios would have been larger.

Another reason for not expecting the same values is the fact that the procedures used in computing them were different. Martin divided the

average strength by the average weight, but Rogers divided the inter-quartile range in "strength" indices by the inter-quartile range in weight. Martin's values are the ratios of scores, Rogers' ratios of variabilities of scores. Martin assumed nothing regarding the correlation between strength and weight. Rogers assumed a perfect (+1.00) correlation.

The only disturbing thing to be seen in Table I is the fact that Martin's S/W ratios are approximately the same for the various ages, whereas Rogers' multipliers change rather rapidly as we read down the column.

TABLE I

STRENGTH/WEIGHT RATIOS (MARTIN) AND WEIGHT DEVIATION MULTIPLIERS (ROGERS). FOR MALES.

Age	Strength/weight ratios (Martin)	Weight deviation multipliers* (Rogers)
5	17.4	
6	20.2	
7	19.8	
8	19.8	
9	21.0	
10	20.2	
11	20.7	
12	18.8	9.5
13	19.9	9.5
14	18.1	11.8
15	18.3	15.9
16	21.1	18.5
17	23.2	19.9
18	23.2	20.5
19		20.6

* Rogers gives values for 3-month intervals, from 11 years—6 months to 19 years—3 months.

In Martin's test an extra pound of weight would carry with it about the same extra strength for a boy of twelve as for a boy of fifteen. But in Rogers' test the extra pound of weight carries with it more than 50 per cent more strength for the boy of fifteen than for the boy of twelve. In other words, the correction for weight in Martin's test is about the same for the different ages; but for Rogers' test it varies considerably with age. If both of these tests were really tests of strength, there would be a very definite contradiction between Martin's and Rogers' values.

In dealing with measures of a single trait or quality extending over a number of years, the increase in variability ordinarily is proportional to the increase in mean scores. Therefore, because the ratio of strength to weight (Martin) remains fairly constant over most of the age range given, we might expect the ratio of the variability in strength to the variability in weight (Rogers) to be constant. We find, however, that Rogers' "weight deviation multipliers" vary with age.

The explanation probably lies somewhere in the items that go into

the total strength score (Martin) and the Strength Index (Rogers). Rogers uses a measure of vital capacity as well as measures of strength as a basis for the computation of his Index, and height and weight both enter into the calculation of some of the other items that are added to get the Strength Index. The growth or age curves may not be comparable for the different items.

Finally, what many of us need is a series of strength tests somewhat like Martin's, computed by a combination of the procedures employed by Martin and by Rogers. That is, strength scores that are simple and direct, like Martin's, with norms for different sexes, ages, and weights. Satisfactory norms must be based on much larger numbers of individuals of different sexes and ages than Martin and his associates used. The "personal equations" of the examiners should not vary as much as they do with Martin's procedure. In connection with norms of such things as weight and strength, we are always confronted with another problem. Should they give actual weights or strength scores for a true sample of the population, or should they give the weights or strength scores for those who are in good condition? For some purposes we may need the first; that is, values from large numbers of unselected individuals. For some other purposes, something may be said in favor of norms obtained by measuring only those individuals who are in good health and whose development has been approximately normal. With such norms, the abnormality of the abnormal, or at least the unusualness of the unusual would stand out more clearly. Norms influenced by measures of weaklings will make the weaklings appear more nearly normal. And, if corrections in strength scores are made for deviations from the "normal" weight, the final norms for strength, if soft, obese, and weak individuals are used in establishing them, will make these individuals appear more nearly normal.

THE QUESTION OF RACE

Should we have separate norms for the different races? This question, of course, we cannot answer at the present time. However, even if we had adequate norms for whites, we should have to be very cautious in using any of them when studying a member of another race. If norms were established for whites, and it were found that most of the members of another race made scores above or below these norms, it might or might not be necessary to establish norms for the other race. If the difference was due to truly racial (hereditary) factors, then separate sets of norms would be necessary. But if the difference was the result of environmental factors, we should not use a different set of norms. If, because of poor conditions of living, nearly all the members of a race made scores below the norms for whites, we should use norms that would tell us what strength any given individual would have if his development had been normal. If a much larger per cent of one race than of another have been and are malnourished, and more frequently

afflicted with rickets, hookworm, or malaria, the average strength of such a race, if used as a norm, would make an average individual of the race appear as "normal" even though his strength were far below what it should be and would have been under better conditions of living. There would be less likelihood of our trying to remedy the conditions responsible for the decreased strength. On the other hand, it is quite possible that under equally favorable circumstances, the average strength of some racial and subracial groups will be found some day to be higher than the average strength of other groups. If so, separate sets of norms must be available before we can tell whether the strength of any individual is normal.

Stated briefly, then, the situation with regard to the necessity of separate racial or subracial norms is as follows. If there are significant hereditary differences, separate sets of norms are needed. If there are differences resulting from environmental differences no separate norms are needed, although we might be interested in knowing how much effect the environmental factors have had. If there are no significant differences between the averages or distributions in the different racial or subracial groups it is probable that no separate norms would be needed, although there is the theoretical possibility that a potentially stronger race living in an unfavorable environment might therefore make the same average scores as a potentially weaker group living in a better environment.

THE QUESTION OF BODY-BUILD

Another problem arises in connection with the existence of different builds. Age for age, and weight for weight, should we expect the same strength for the tall and slender individual as for the short and stocky individual? The reader is likely to think here of Kretschmer's pyknic and asthenic types as two extremes. It may or may not be necessary to have separate norms for these and perhaps other types; we shall have to determine the answer empirically. However, it is probable that we shall have to "correct" our norms to take account of differences in build and the constitutional or physiological differences that go with them. I have found that the partial correlation between strength and height, with weight equalized, is —.40. In other words, within a group of men, all of the same weight, there is negative relation between height and strength. The average strength of short 150-pound men is greater than it is for tall 150-pound men. At a later time I shall have more to say about this situation.

RESULTS OBTAINED WITH DIFFERENT DYNAMOMETERS ARE NOT COMPARABLE

Another reason why it is difficult to find adequate norms of strength is to be found in the fact that results obtained from different dynamometers are not comparable. Hand dynamometers, of which there are at least eight varieties, are of different shapes. Many investigators ap-

parently have assumed that the results obtained with these different dynamometers are comparable, and that one is about as good as another. To determine whether or not such an assumption is justified, I decided to see whether measures of strength of grip as obtained by an elliptical dynamometer and by the Smedley dynamometer are comparable. These two instruments were used to secure readings for right-hand grip from a number of individuals. Numerous trials were given alternately, at about two-minute intervals. The Smedley was adjusted so the outside distance between the two parallel parts held in the hand was the same as the transverse outside diameter of the elliptical instrument. This is about the maximum adjustment possible for the Smedley, and the best adjustment that can be made for most adult hands. The results are shown in Table II. These data have been corrected for some errors in calibration, and are therefore not influenced by such errors.

Two main facts stand out in this table. One is that the force exerted on the Smedley is considerably greater than that exerted on the elliptical instrument. In testing grip, the muscles involved in the flexion of all the fingers are being tested. It is impossible on the elliptical dynamometer to get the full advantage of the muscles flexing the index and little fingers. This is probably the main reason for the fact that so much more force is exerted on the Smedley than on the other instrument.

The second fact revealed by these data is that the difference between the results from the two instruments varies from subject to subject. The readings on the Smedley are 19 per cent higher than those on the other for one subject and 63 per cent higher for another. There is no way of correcting the readings taken from one to make them comparable with readings taken from the other. Strength of grip evidently depends upon what is being gripped.

Although it is far from perfect, I believe the Smedley is the better

TABLE II

COMPARISON OF GRIP-STRENGTH MEASUREMENTS

Subject No.	Weight	Height	Hand Width	Palm Length	Finger Length	Hand Length	Average Scores			
							Zimmerman	Smedley	Diff.	Per Cent Diff.
1	150	72	3.7	4.2	3.3	7.5	32.3	52.8	20.5	63
2	156	70	3.4	4.4	3.3	7.7	35.0	55.0	20.0	57
3	115	65	3.1	3.9	2.9	6.8	20.0	31.0	11.0	55
4	185	73	3.5	4.3	3.1	7.4	40.0	56.7	16.7	42
5	175	70	3.5	4.1	3.4	7.5	42.0	59.5	17.5	42
6	167	73	3.6	4.4	3.3	7.7	41.7	57.0	15.3	37
7	153	68	3.3	4.0	3.2	7.2	29.7	40.7	11.0	37
8	161	69	3.7	4.4	3.3	7.7	46.2	62.6	16.4	35
9	125	70	3.4	4.1	3.1	7.2	31.0	40.5	9.5	31
10	160	72	3.7	4.3	3.4	7.7	47.0	58.3	11.3	24
11	148	70	3.6	4.2	3.4	7.6	47.3	56.4	9.1	19

of the two instruments. One reason for this belief is the fact that the readings are higher. Another reason is that if two minutes are allowed between trials, the readings on the Smedley vary considerably less than the readings on the other. If the interval between grips is too short there is likely to be a decrease in the readings on either instrument, but in this case the decrease is more uniform and less erratic in the readings on the Smedley.

THE QUESTION OF RELIABILITY

Contrary to a common idea, reliability does not mean accuracy. It must be admitted that the unfortunately named "Coefficient of Reliability" for grip is high, and if I were to say no more someone would be sure to dismiss all that has been said so far with the remark: "But the reliability is high, therefore the measures obtained by the elliptical dynamometer must be accurate. They surely cannot be reliable and inaccurate at the same time." But that is exactly what measures obtained by using the elliptical dynamometer are; the term "reliability" as applied to the self-correlation, means self-correlation and nothing more. The elliptical dynamometer and also the Smedley dynamometer will give data showing high "reliability" (self-consistency) but they cannot both be acurate. (See Table I.) No matter how inaccurate scales might be in measuring weight, if the errors are constant the scales will have high "reliability." With a meter-stick that had shrunk to one-third of its former length one could still obtain very "reliable" measures of height, but they would hardly be accurate.

In some situations, errors actually increase "reliability." It is very probable that the "coefficient of reliability" for the elliptical dynamometer is actually increased by the errors in measurement. That is because the error tends to be consistent for a given individual, but not constant from individual to individual. The errors alone, if correlated, would be likely to show high "reliability."

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A Bibliography of Skiing in the English Language

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MUCH information on skiing is easily available if references are known. Books in the English language as well as translations into English are accessible throughout New England. Certain other localities lack any considerable number of books on the subject of skiing but usually a few of the more recently published works may be secured. These serve as a very satisfactory approach and if they are not to be found on the shelves, they may be secured through an interlibrary loan. The following list is selected from a more complete bibliography that includes books in several foreign languages as well as in English. All of these references were secured in one or more of the following libraries: The Boston Public Library, Harvard University Library, Library of the Appalachian Mountain Club in Boston, Library of the Club Alpine Suisse in Geneva, Switzerland, the Springfield Public Library, Library of the International Y.M.C.A. College in Springfield, Massachusetts, the Berkshire Athenaeum in Pittsfield, Massachusetts, and the Library of the Ski Club of Great Britain in London.

The materials included in this list are not exhaustive. For the sake of enlarging this work and making it as complete as possible the collaborators would welcome additional items regardless of availability or comparative value. Other compilations including foreign books, periodicals, yearbooks, publications of skiing and outing clubs, and of skiing movies are being made. As these appear, corrections, suggestions, and submission of additional items will be in order.

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An Abstract of a Study of Differentials in Junior High School Boys Based on the Observation of Physical Education Activities*

A Study of "Fringers" vs. "Actives"

By CHARLES C. COWELL

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THE PROBLEM

STATED specifically, the problem of this study is to determine some of the fundamental differentials that characterize those junior high school boys who enter wholeheartedly into the common social big-muscle play activities of the physical education program versus those who tend to be "fringers" or who have to be unduly encouraged to "get into the game." In other words, it is a differential study of "actives" versus "fringers."

A part of the research is also to determine how the physical education teacher, the classroom teacher, and the trained observer compare in their responses to these differentials.

A BRIEF HISTORY RELATING TO THE PROBLEM

Social psychology, which studies individuals in their relations to each other, has been lacking in quantitative experimentation. Functional analysis, which treats the subject as an intact, unified organism, has been little employed; the behavior of subjects has been studied as that of individuals rather than members of a group, and this isolation from a natural setting has made complete study impossible. As regards historical experimentation of a fact-finding nature, with the mental hygiene approach, we find a great paucity of data. The historical evidence, although empirical, is largely testimonial in nature rather than factual.

Practically all clinicians and mental hygienists agree that failure on the part of the child to enter into normal social play activities is a symptom of valuable clinical significance. Recent studies[1,2] show that the

* Presented before the Research Section of the American Physical Education Association Convention April, 1935 in Pittsburgh, Pa.

NOTE: The author realizes that an abstract does not do justice to the methods employed in this study. He is publishing this incomplete account of his study at the request of the Editor, and will, in the future, publish certain phases of it in greater detail.

1 E. K. Wickman, *Children's Behavior and Teachers' Attitudes.*

2 Julius Yourman, "Children Identified by Their Teachers as Problems," *Journal of Educational Sociology,* V (February, 1932), 334–343.

ordinary classroom teacher fails to see in children those characteristics which are of great importance in social adjustment and in the development of social intelligence. Shy, fearful, oversensitive, cowardly, suspicious children are seldom reported as being maladjusted.

Perhaps the most complete recent study of individual differences in play interests and sociability was made by Witty.[3] One of Witty's conclusions was that "non-social children are well adjusted to school life, and that non-social children are not eccentric or 'queer' and that 'non-sociability is a salutary tendency.'"

METHODS AND PROCEDURES

Selection of Fringers and Actives.—The male teachers of physical education in four junior high schools of Springfield and in one of Ludlow, Massachusetts, were asked to provide a list of ten or a dozen white boys who, from their class behavior, seemed disinclined to enter wholeheartedly into the activities of the program. In this study these shall henceforth be designated as "fringers." Instructions to teachers eliminated boys with obvious physical or mental handicaps.

Out of the resulting sixty boys, fifty were chosen at random for this study.

About a month later the same teachers were asked to provide a list of ten or a dozen white boys who did enter wholeheartedly and spontaneously into the activities of the physical education program. These boys shall henceforth be referred to as "actives." This provided for each fringer subject an active control.

Collection of Data

The 50 fringers and 50 actives were found to be distributed in 33 different homerooms throughout 5 schools. In these 33 homerooms were found a total of 596 boys and 445 girls.

The data in this study resulted from the use of three devices, the "Boys' Citizenship Ballot," the observation charts, and the trait-cards.

Boys' Citizenship Ballot.—Under the camouflage of the above title, name lists of the boys in each of the 33 different homerooms were scrambled on 4 different lists which represented 4 different votes on the 1 ballot. Each of the 1041 children ranked their respective male classmates on 4 different items on the 1 ballot sheet.

Each child ranked the boys in order of merit on each item. This made obtainable the judgment of about thirty-five children on every boy for each of the four items. The average ranking of any one boy was presumably a fair criterion of what the group thought of him.

May[4] suggested a comprehensive plan for measuring personality by using some such scheme. It is recognized that each boy would represent

[3] Paul Andrew Witty, *A Study of Deviates in Versatility and Sociability of Play Interest.*

[4] Mark A. May, "A Comprehensive Plan for Measuring Personality," *Proceedings and Papers of the Ninth International Congress of Psychology,* 298–300.

a somewhat different stimulus value to the various members of his group. His final place on the scale, say from one to thirty-five, however, would represent some average or function of these various values assigned by each colleague.

Item I: *"Social Distance Ballot."*

This item was intended to give some quantitative measure of the social attitudes of the voting children toward every other child. It is an adaptation of the test Bogardus[5] devised to measure "social distance." Each student went down the list of his classmates, placing a check in one of seven columns after each name. The columns were labeled, "I would be willing to admit him

1. To my family as a brother
2. To my club or scout troop as a personal friend
3. To membership in my team if I were captain
4. To my street as a neighbor
5. To my class in school
6. To my school
7. To my city"

Each column was weighted as numbered, Column 1 x 1, Column 2 x 2, etc. The final index for each boy was represented by his total weighted score divided by the number of students casting ballots.

Item II: *"The 'Good Mixer' Ballot."*

Situation: Our homeroom is giving an entertainment for all parents, and you are to choose the *boy* of the room who might best organize the entertainment and greet the parents as they come—trying to make all feel at home.

Item III: *"The Athletic Council Ballot."*

Situation: The school has an athletic council, and this room desires to select a boy to represent the room in the council, which deals in all matters pertaining to school athletics.

Item IV: *"The Good Organizer Ballot."*

Situation: Your homeroom plans to have a campaign to sell candy, soap, or some article in order to raise money for a room picnic. You need a campaign manager with abundant energy; a good organizer and salesman.

With the last three items each boy was given an index number by dividing his average rank by the number of children voting for him.

Observation Charts.—The short sample observation technique was employed to secure reliable behavior data in the natural environments of the boys.

In order to determine trends of differentiation between actives and fringers on each item, the critical ratio of the difference between the *percentage* of all possible times a given item was checked for an active

[5] Emory S. Bogardus, "Measuring Social Distance," *Journal of Applied Sociology*, IX (1925), 299–308.

and the percentage of times it was checked for a fringer was determined.

The observers began their work in the locker-rooms; the observations were carried to the playground or gymnasium and ended after the boy had taken his shower and had dressed. Each boy was observed for a forty-five-minute period by five different observers. The average number of observations on each boy was five.

Behavior Trend Cards; Adaptation of the Marston Technique.— Another device to get data on the individual's reaction in social situations was the use of behavior trend cards. Thirty-nine behavior trends and their opposites were typed on separate cards, each with a small key number on the reverse side. Classroom teachers and physical education teachers used the technique on fringers and actives. With a given boy in mind they placed every behavior trend card under one of the following headings:

Markedly descriptive of the child
Somewhat descriptive of the child
Only slightly descriptive of the child
Not at all descriptive of the child
Do not know.

This method demanded that the rater keep only one, single, definite concept in mind at a time, made possible a study of the rater's reliability, and tended to eliminate the assigning of values with uncertainty with the "Don't know" and the "Not at all" headings available.

THE SOCIAL TREATMENT OF FRINGERS AND ACTIVES BY THEIR COLLEAGUES; RESULTS AND INTERPRETATION OF STATISTICAL HANDLING OF THE BOYS' CITIZENSHIP BALLOTS

The answers to questions arising from the "Good Citizenship Ballots" were sought in the validity correlation coefficients resulting from the comparison of fringers and actives and in the intercorrelation coefficients resulting from the ballots. Being classed as an active by the teacher of physical education correlated:

.499 with being considered a good mixer by boys
.418 with being considered a good mixer by girls
.729 with being considered a good athletic councillor by boys
.533 with being considered a good athletic councillor by girls
.575 with being considered a good organizer by boys
.421 with being considered a good organizer by girls
.474 with being socially acceptable to other boys
.441 with being socially acceptable to girls
—.080 with the degree to which he accepts other boys socially
.409 with the degree of social caution compared to acceptance by other boys.

If girls were selecting boys as actives or fringers, their judgment would differ more from that of the teacher of physical education than would the boys', but not markedly.

In no place on the quantitative scale of any phase of the Boys' Citi-

zenship Ballot where voting was done by either boys or girls is there a lack of positive relationship between being considered an active by the teacher of physical education and being socially more acceptable to one's schoolmates.

Furthermore, a positive relationship exists between being considered an active by the teacher of physical education and being regarded by one's classmates (both male and female) as having superior ability to function ably in the following situations:

1. Organize a school entertainment.
2. Greet adult guests and make them feel at home.
3. Represent one's room in an athletic council.
4. Organize a money-raising campaign for a homeroom picnic.
5. Be a good manager and salesman with abundant energy.

SHORT SAMPLE OBSERVATIONS ON THE PLAYGROUND AND IN THE GYMNASIUM; RESULTS AND INTERPRETATIONS OF STATISTICAL HANDLING OF THE OBSERVATION CHARTS

After determining that boys and girls tend to very definitely discriminate against those boys designated as fringers by teachers of physical education, an effort was made to determine what personality differentials were, in part, responsible for this discrimination.

By using only those items giving a critical ratio above three, the following word pictures of the actives, as compared to the fringers, resulted:

To the homeroom teacher the active tended to be unembarrassed and at home in the crowd, active, and seemed to give considerable leadership to the group and as one of the "backbones" of the group tended to be agile-minded and full of "pep" and self-confidence.

To the teacher of physical education, he tended to be full of "pep," entered into work and play wholeheartedly, was keenly alive and alert, was so busy doing things that he was not given to reverie or brooding, was alert and one of the "backbones" of the group. He sought social contacts and games involving give and take and was one of the first dressed and on the field.

Trained observers painted a picture of the actives similar to that of the physical education teacher.

In general the behavior trends of the fringers have negative social stimulus value. *No single item, of the observation illustrative of negative social stimulus value, failed to give a critical ratio in favor of the fringers.*

Objective observation tended to picture the fringer type, in part, as follows:

Content to be an onlooker.
If he disappeared, the group would not miss him very much.

Seems to have few friends, the kind one would find it difficult to know well.

Sluggish.

Seems to lack energy.

Rather clumsy and awkward.

Has a restricted range of play activities.

Very illogical.

The rating scales employed by homeroom teachers, physical education teachers, and special observers, on skill, musculature, skeletal structure, and personal appearance all showed the fringer tending to be at a distinct disadvantage.

Considering the social stimulus value of these positive differentials, there is little doubt that they are also important factors in aiding children in social adjustment. Where boys tend to be socially accepted, they likewise tend to be superior in game skills, above the average in muscular development and skeletal structure, and somewhat superior in personal appearance.

COMPARATIVE JUDGMENTS OF HOMEROOM TEACHERS, PHYSICAL EDUCATION TEACHERS, AND SPECIAL OBSERVERS REGARDING THE BEHAVIOR TRENDS OF FRINGERS AND ACTIVES; RESULTS AND INTERPRETATION OF STATISTICAL HANDLING OF THE BEHAVIOR TREND (TRAIT) CARDS

By handling of the behavior trend (trait) cards as described on page four, the following word picture of the fringers in general came from the homeroom teachers and the physical education teachers, respectively:

Homeroom Teachers.—He is slow in movement, deliberate or perhaps indecisive. His energy output is moderate or deficient. Furthermore, he is prudish, awkward, and easily embarrassed in social contacts.

After defeat in competition with others he becomes much upset, even ill. He is a poor loser.

The boy is unpopular, avoided. He often pouts or sulks. He also shrinks from making new adjustments and prefers the habitual to the stress of reorganization that is required by the new.

Physical Education Teachers.—He is slow in movement, deliberative or perhaps indecisive. His energy output is moderate or deficient.

He lacks self-confidence and initiative and is a follower.

He is rather indifferent to external events and tends to detach himself from the environment, even tending to be depressed and sometimes gloomy and moody.

He prefers to work and play alone and tends to avoid group activities.

He has a narrow circle of friends and shrinks from making new adjustments.

To any psychiatrist, mental hygienist, or clinician, these two pic-

tures of marked statistical reliability would be extremely significant. To them there would be no doubt that the behavior tendencies which fringer children in general possess are also psychasthenic tendencies of great clinical value.

Statistical handling of the behavior-trend cards gave the following word pictures of actives in general by homeroom teachers and physical education teachers, respectively:

Homeroom Teachers.—He enters heartily and with enjoyment into the spirit of social intercourse and is a good loser and a "good sport," taking defeat without upset.

He is frank, talkative, and sociable and does not stand on ceremony.

He is self-confident and self-reliant, tends to take success for granted, and has strong initiative and prefers to lead.

He seeks a broad range of friendships and is not selective or exclusive in games and the like.

Physical Education Teachers.—Enters heartily and with enjoyment into the spirit of social intercourse. He is aggressive, full of "pep," and will try anything once.

He is quick and decisive in movement and has a pronounced or excessive energy output.

He has a lively curiosity and is keenly alive to his environment, physical and social.

He is a good loser and a "good sport," taking defeat without upset.

THE RELIABILITY OF THE BEHAVIOR-TREND JUDGMENT

The physical education teachers were substantially reliable in assigning the corresponding opposite description to a negative behavior trend when they had first assigned some degree of description to a positive trend. The permutation reliability coefficient of —.67 is indicative of this.

The homeroom teachers represented a somewhat higher degree of consistency with a permutation reliability of —.78.

This negative correlation coefficient indicates that all teachers tended substantially to be as reliable when they rated a boy from the negative angle as they did from the positive angle. If at one time they said that the statement "Hearty and cordial, even to strangers, forms acquaintances very easily" was "markedly descriptive," they tended later to say that the statement "Reserved and distant except to intimate friends, does not form acquaintances readily" was "not at all descriptive."

A Pearson correlation coefficient of .90 between the physical education teachers' behavior trend (trait) indices and the homeroom teachers' indices indicates a marked degree of correspondence, and means essentially that when a physical education teacher tended to assign a negative behavior trend to a fringer, the homeroom teacher tended to do the same.

GENERAL CONCLUSIONS

Junior high school boys who are disinclined to enter whole-heartedly into the social big-muscle play activities of the physical education program tend to answer the following description as determined by the techniques employed in this study:

1. They are less socially acceptable to other boys and girls.
2. They tend to regard others as socially more acceptable than they are regarded by other boys and girls.
3. They are considered much less able by other boys and girls to fulfill school positions demanding qualities of virtue than are actives.
4. They show a marked tendency to exhibit those negative behavior trends which psychiatrists, mental hygienists, and clinicians indicate are symptoms of great clinical value.

Statistical handling of the data in this study gave some other valuable indications. These are:

1. The teachers of physical education who assisted in this study were highly competent in choosing fringers and actives.
2. There was, in general, a high degree of agreement between boys' colleagues, teachers of physical education, and homeroom teachers as to the personality differentials of the two types.
3. While the physical education teachers tended to notice many more behavior trends in boys than did homeroom teachers, the latter were somewhat more reliable in assigning what behavior trends they did assign to boys.
4. From the standpoint of social adjustment and happiness, fringer boys, in general, are against tremendous odds when one considers the apparent presence of personality differentials which have negative social stimulus value.

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BOOK REVIEWS

PARTNERS IN PLAY. Mary J. Breen. (New York: National Recreation Association, 1934) 130 pages. 75 cents.

The author is to be complimented on the large amount of very worth-while material contained in the 130 pages of this book. It was prepared especially for leaders of young people but two-thirds of this book is equally valuable for individuals or groups seeking help and what to do in their recreation.

The first four chapters are written especially for leaders and deal with the problem of administering co-recreation. I would recommend to all leaders of recreation the excellent chapter on "Dances and Their Management" as different and one of the best helps to any group in facing the dance problem which exists today in most non-commercial dances. The book is worth purchasing for the material in this chapter alone.

The game material is chosen because of its possibility in activities commonly conducted for both sexes. It contains very helpful suggestions on dance games and stunts, parties and socials, hikes, and outings, water sports, snow and ice sports, arts and crafts, music and drama. I would recommend the *usability* of these program ideas. There are sufficient games ideas for continuous programs for several years. The author gives evidence of having chosen her ideas from a wide field of experience in recreation and gives all indication of an understanding of the problem most leaders face when conducting the new, important area of recreation for both sexes.

No one in church, school, or social agency interested in recreation for young people can afford to be without this *timely* book on what to do and how to do it in the name of better recreation for young men and women.

HARRY D. EDGREN
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MODERN BASKETBALL FOR GIRLS. Wilhelmine Meissner and Elizabeth Yeend Meyers. (New York: Scholastic Coach Bookshop, 1935) 54 pages, illustrated, $1.00.

The title of this handbook on girls' basketball is well chosen since the content emphasizes the new type of game which has been developing gradually as the result of rule changes. The authors make no claim of fully covering all phases of basketball technique; however, the material presented supplements rather than duplicates that which can be found in other texts.

A section on fundamental skills makes little attempt at analysis. This section includes information relative to the use of each skill and also valuable "key points" which aid in the execution of these skills. The numerous photographs included in the section are excellent.

Offense and defense play are treated through numerous coaching suggestions or "key points," all of which are extremely valuable.

The book contains also some forty-three diagrams of practice formations and floor plays so presented that the specific skills involved in the execution of the play are indicated. Many of these plays have been taken directly from game situations, so that practice of them develops actual game strategy.

The diagrams of the two- and three-court fields (recommended for record-

ing plays) should be welcomed by all who use the book. Any basketball coach or student of the game could well study the material presented in these pages.

LAURIE E. CAMPBELL
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PHYSIOLOGY OF MUSCULAR ACTIVITY. Edward C. Schneider (Philadelphia: W. B. Saunders Co., 1930) 401 pages. $2.75.

Dr. Schneider has succeeded in putting into four hundred pages a very acceptable and readable account of our present-day understanding of the physiology of exercise. His style will appeal particularly to those who prefer description to tables, graphs, formulas, and equations, although he has not omitted these where they are needed to support his argument.

After an introductory chapter which makes an admirable argument for an integrated view of body processes and interprets the great Claude Bernard, twelve chapters are devoted to discussion of the muscular, respiratory, blood, and circulatory processes. Each is presented with particular emphasis on its rôle in exercise adjustments.

Then follows an excellent chapter on the coordination of all these functions during exertion. Chapters on the chronic changes induced by exercise and on fatigue and staleness bring together most of the present viewpoint in these areas. There are closing chapters on tests, medical aspects of heavy athletics and industrial work, and exertion at high temperature and high altitude. In these latter chapters particularly, Dr. Schneider is speaking of matters in which his own personal experience and long researches have made him not only famous but also authoritative.

The book is recommended to those who desire a clear statement in simple language. It does not presuppose much acquaintance with physiological chemistry.

The absence from the index of such terms as digestion, stomach, intestine, albuminuria, and kidney and the scanty reference to endocrines, limited to a general statement of adrenin function, is in a sense an eloquent omission. It suggests not so much that Dr. Schneider has omitted certain important researches, though this is true in part, but rather it points to the inadequacy of our present-day understanding of the reaction of more vegetative processes to exercise and cries for more research to be done in these areas.

Sixteen pages of bibliographical references to selected original articles enhance the value of the book to the student.

ARTHUR H STEINHAUS
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A TEST FOR MEASURING THE PHYSICAL CAPACITY OF SECONDARY SCHOOL BOYS. Howard Leigh MacCurdy. (Yonkers, N.Y.: Senior High School, 1933) 59 pages.

Dr. MacCurdy has, in his Physical Capacity Index, made another worthy attempt to analyze that elusive quality which, when present, we like to believe is responsible for good performance, and when absent, is our alibi for being classed a "dub." The test is commendable in that it is easy to give and is not dependent "on any skills which the student may have previously learned." While strength is the backbone of the test, the author has done away with the old familiar "pull-up" and "push-up" and found an easy method for measuring "push" and "pull" that may be used for testing either boys or girls. The main idea is to find a relationship between strength (Force Index) as measured in strength of back, legs, arms, hands, and the ability to jump vertically (Velocity Index) and to reduce the product of these results into a usable index (Physical Capacity Index) $\times$ (Total Force times Velocity Index $\div$ 100 = Physical Capacity Index.) For a few dollars, the dynamometers can be purchased, all other equipment can be arranged in most any modern gymnasium. Complete details for giving the

test are clearly cited. The main purpose of the author in devising this test is to find a quick, reliable method for classifying students into homogeneous groups. For those interested in this type of testing, this work cannot be neglected and must be considered along with the work of Brace, Cozens, McCloy, and Rogers.

One noteworthy element of this work is that no norms have been calculated inasmuch as the findings are based on records of the high school boys of Yonkers; therefore, could not be considered standards for the United States. Each community is expected to calculate the norms for its own use.

Recognizing this test for the purposes intended, there still remain some puzzling questions to be answered:

Is performance a sure indication of physical ability or does it just represent some stage of our learning?

If we can increase our performance by training, have we increased our physical ability also?

Does good performance in one set of activities guarantee good performance in others of quite a different sort?

What is our answer to those psychologists who doubt that there is "physical ability" as a distinct measurable quality?

In the same individual, movements that are similar have a high correlation while those that are dissimilar have a low correlation; can we have the quality of physical capacity in the one case and not in the other?

Strength varies according to training and the elimination of useless movements, the ability to get a larger number of fibers into the movement. Does a poor record mean lack of training rather than lack of any innate quality?

Tests as here devised can be valuable tools and more research in this field is highly desirable.

The need for classification and the proper understanding of the needs of students under our care is a prime requisite of our profession. Every contribution to this field should have careful scrutiny.

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A STUDY OF SCHOOL HEALTH STANDARDS. Anette M. Phelan. (American Public Health Association, 1934) 249 pages. $2.50.

A study of the entire school health program from the viewpoint of the working standards involved is one to challenge any investigator in the field of school health. Indeed, consideration of standards in a particular phase of school health, such as health service or health instruction, involved ability, time, and perseverance which few persons are privileged to possess. However, Dr. Phelan has succeeded in making a comprehensive study of the working standards effective in a complete school health program, and the publication of the procedures and results of this study in *A Study of School Health Standards* is a commendable reward for her efforts.

Her preliminary effort was to find in the literature (in both individual and group reports) standards which were acceptable at one time or other to at least some group of persons in the field of school health. From a historical standpoint this compilation of the sources of these standards is of great value to the field. It is of interest to note here that present-day standards, quite generally accepted now, had their origin in a comparatively small number of sources. Two main sources stand out prominently: the work of Dr. William H. Burnham, and the publications of the Office of Education. The recognition of Dr. Burnham as an outstanding pioneer in the field of school health should be more widely broadcast. Table 3, facing page 37, is especially significant in its compact means of presenting the time and specific sources of the working standards

which have developed since 1867. Dr. Phelan chose 242 standards affecting comprehensive school health programs as the basis for her study.

Surveys have shown that a number of cities demonstrate many standards in actual operation, but, that few (if any) cities have complete school health programs involving all the essential working standards. Dr. Phelan believes that the non-inclusion of all working standards is primarily due to the lack of acceptance of certain standards by persons responsible for the school health program. Of course, other reasons for non-inclusion are recognized by the author; however, if a standard is highly acceptable to a person having the responsibility of developing a complete program of school health, it is apt to find its way into practice.

The author then proceeded to choose people in the field of school health who would be influential in putting these standards into actual practice. The persons chosen were asked to rate these standards on a scale which would indicate the degree of their acceptance for each standard. Fifty-two raters were selected; they offered to rate and comment upon each standard.

The majority of the 242 selected standards received ratings which indicated that they were either essential to or highly desirable in a school health program. Choosing standards which involved controversy as shown by the variation of ratings of the raters, Dr. Phelan continued to make a thorough investigation of the trend of thought of various authorities and the facts of scientific investigations concerning these controversial standards. The presentation of the best available opinion and facts regarding these standards which had a lower percentage of acceptance among the raters constitutes a considerable proportion of this publication.

The author suggests the need for more thorough study of working standards in particular phases of the school health program. No one would be more capable of directing such investigation than Dr. Phelan.

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Health and Its Maintenance. Bertha Stuart Dyment, M.D. (Stanford University Press, California, 1931) 472 pages. $3.50.

Opening with an interesting explanation of what health is and what the numerous causes of disease are, Dr. Dyment ably points out that an educated person must not rely upon or be moved by mysticism and incantations to maintain health "at par." Such optimal health is dependent on a study of hygiene, the care of the body. This care, of course, does not recognize superstition in any form; it can only be founded on an intelligent application of a knowledge of structure and functioning of the human body.

In a somewhat detailed and technical fashion, the author proceeds to describe in the remaining chapters, specific matters of hygiene and those features of the body systems (bony, circulatory, nervous, respiratory, digestive, reproductive, excretory, endocrine, etc.), which she believes to be essential for combating disease and maintaining health.

Most chapters follow the plan of recording: the structure of an organ, the functions of the organ, the hygiene of the organ, and the common disorders of the organ.

Especially serviceable and fascinating are the chapters on nutrition, reproduction and embryology, and the parts which discuss the relief and possible treatment for such common ailments as: headaches, colds, tonsilitis, acne, pyorrhea, corns, constipation, dandruff, boils, ringworm, and dermatophytosis.

The utility of this text has been further enhanced by the splendid chapter on "Individual Mental Hygiene," by Catherine Cox Miles of the Department of Psychology, Stanford University, and the chapter by Mrs. Eric Allen on "The Girl About to Marry."

While this volume is replete with

scientific and accurate data and on the whole is a valuable guide to college women studying personal hygiene, it seems to the reviewer that it would be more helpful if it contained a number of out-of-class problems or activities after each chapter and less anatomy and physiology.

The sixty-two illustrations and figures not only make a vivid impression but with the complete index greatly contribute toward making of this publication a significant contribution in the field of personal hygiene.

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Handbook for Camp Counselors. Rosalind Cassidy and Homer Bemiss (editors). (Homer Bemiss, Oakland, California, 1935) 94 pages, paper. $1.00.

It is a fact that the literature on organized camping, in volume at least, has been all out of proportion in its meagerness with the importance of this significant branch of modern education. Gradually, however, a scholarly library is being created for the professional training of directors and counselors, and for the information of all who are interested in the camping way of education.

This latest contribution to camping literature comes to the field as a group project, twenty-nine experienced camp directors of the Pacific Coast area having combined to produce the volume under the able editorship of Rosalind Cassidy, Chairman of the Department of Physical Education of Mills College, and Homer Bemiss, Boy Scout Executive of Oakland, California. The result is a manual broader in scope and vision, and freer from bias and particularism, than could possibly have been the case had it been the work of one individual. The book represents the composite experience and best group thinking of that group of directors who, during the past ten years, have been responsible for the growth of the camping movement along the Pacific Coast.

The book is first of all practical. It speaks directly to the counselor and tells him what the camp director expects him to know about the technique of camp leadership and the characteristics of those whom he will have to lead in camp.

The chapter heads are wisely chosen, covering all of the more vital problems involved in camp leadership and management. Each chapter is made up of contributions by several different authorities, each representing a different type of camp — private, organization, municipal, boys', girls', and so forth.

Each chapter is concluded with a bibliography on the subject and there is an excellent and comprehensive bibliography on arts and crafts at the end of the book.

Certainly such a significant volume as this deserves a place on every camp director's book shelf, in college and university libraries, and in public libraries. It is valuable as a guide to thinking in college camping courses, in counselors' discussion groups in camp, and for the self-training of those who would be informed on the problems of camp leadership.

Bernard S. Mason
Editor, The Camping Magazine, Ann Arbor, Michigan.

Le Rôle de l'Education Physique dans le Developpement de la Personalité. K. H. Van Schagen. (Librairie Felix Alcan, Paris, 1934) 539 pages. Bibliography, p. 511–22.

The Rôle of Physical Education in the Development of Personality is a work produced by the inspector of physical education for the city of Amsterdam, Holland. It is largely historical but a critical strain runs throughout the treatise.

In the historical review of the place occupied by physical education in general education the author deals with primitive peoples, Egypt, the Hebrews, China, India, the Greeks, the Romans, the Middle Ages, and modern times including the twentieth century.

The second "book" is concerned with physical education in the teaching of today. This involves a discussion of the founders of modern systems and the de-

tails of their programs for physical education. These systems are grouped as follows: (1) systems of physical education in which anatomy, physiology, and hygiene are stressed; (2) systems which apply strict methods of teaching to physical education; (3) systems in which esthetics, pedagogy, and art are stressed; (4) systems in which biology and pedagogy are emphasized; (5) the new doctrine of physical education developed in modern general educational theory.

The third "book" presents a well-balanced treatment of the sociological significance of physical education; it serves as a counterfoil to the excessive division of labor and to the dangers of a mechanical civilization.

The volume presents two obvious merits: an ample review of many theories and programs of physical education and a running comment by a competent critic. We can possibly turn to no more pertinent topic in these days of increasing leisure than this one: The value of physical education as a means of developing personality. Every student of physical education who wishes to avoid provincialism will find in this treatise a broadening and enlightening discussion of the main problems involved in physcal culture. It may be classed among the permanent reference works that every specialist in physical education should own.

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First Aid Afield. Paul E. Gartner. (The Macmillan Co., New York, 1934) 115 pages. $1.25.

This volume is divided into two parts, namely: First Aid and Water Safety.

No intelligent thinking individual need be convinced of the usefulness and importance of a practical knowledge of "first aid." Accidents are more numerous today than they ever were. Despite this, however, there has been, it seems to me, a lack of authoritative written opinion for the layman regarding his safety and welfare.

Although this volume includes some very fine and unusual photographs by the sportsman author — particularly in part two — and presents some commonsense techniques, its value is greatly diminished by several inaccurate or at least misleading statements.

To be more specific, there appears on page five, the following: "A compound break, of course, will have a piece of bone protruding through the skin or an ugly wound where the splintered bone has punctured the tissue and skin." A layman may only interpret this statement (as the reviewer has) to mean that a compound fracture exists when the broken or splintered bone protrudes or penetrates through the skin. This is not always true. The wound (in a compound fracture) may be made *either* by the sharp end of the broken bone being pushed out through skin, *or* by some object, such as a bullet, or a foil, passing in from the outside.

On page eight a photograph entitled, "A broken forearm is carefully placed upon a padded splint"— yet, there seems to have been applied a firm roller bandage directly over the so-called fracture. A fracture is usually dressed only after it has been "set." A first-aider may only "fix" a fracture, he must *never* "set" one.

The author has assumed a situation in which two people are alone hunting and climbing among rocks, on mountainsides. One of them has accidentally fallen and as a result of the fall and injury is suffering from severe shock. For this condition, the author suggests (page nine), "Aromatic spirits of ammonia, diluted to the approximate proportions of one teaspoonful to a glass of water is an ideal stimulant, but of course, whiskey and brandy are very effective."

"Dr. Watson, where did the 'spirits' and water come from (in these backwoods and with no first-aid kit handy)? Would you agree that 'alcohol spirits' are truly effective?"

On page eleven, there appears, "A broken finger is not particularly serious unless, of course, it happens to be the one which presses the trigger of your rifle."

On the bottom of page twenty-eight,

"Yet a tourniquet properly applied, with pressure concentrated only upon the arterial point, may be left in place for as long as one hour without harm." The American Red Cross and most medical writers differ with this opinion. They advise that a tourniquet is always a dangerous instrument—it should be loosened every fifteen to twenty minutes.

After reading this volume, a careful reader may readily recognize that the author has had much more experience as a "water-front man" than as a "first-aider." In the second part of his book, the author ably discusses the principles, theories, and mechanics of the various swimming strokes and gives some sound advice on self-preservation by telling not only "what to do" but also "what not to do" in a number of "test case" accidents that may occur while in swimming or while boating.

The author concludes his treatise with a splendid and accurate description of the correct approaches and techniques to be used in breaking a so-called "death grip," and in applying the prone-pressure method of artificial respiration.

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An Introduction to Physical Education. Eugene W. Nixon, M.A., and Frederick W. Cozens, Ph.D. (Philadelphia: W. B. Saunders Company, 1934) 262 pages. $2.50.

Among other things, this book attempts: first, to give to individuals, who are contemplating making physical education their life work, a concept of what is involved in adequate preparation for such teaching; second, it provides school administrators with materials which will be of assistance in helping to promote a more effective program of physical education in their schools; third, it may very well serve as a text book in an orientation course in physical education; fourth, the counselor, who undertakes to give guidance to younger students considering physical education as a profession, will find many helpful suggestions.

The newer philosophy of physical education is reflected in the authors' definition which follows: "physical education is that phase of the whole process of education which is concerned with big muscle and related responses, and with the modifications of the individual resultant from these responses."

The book stresses the change in conception about physical education from that of the old school who thought of it often exclusively in terms of exercises, skills, muscle building, perspiration, metabolism, or excretion. But at present it has set up the school as a more or less effective agency to promote certain modifications of the individual in mind, body, morals, and manners which society thinks will enable him to live a more complete and worth-while life than would otherwise be possible. Physical education should be thought of as an integral phase of the project of educating the whole individual.

The individual interest in physical education will find in this book the historic background of physical education; sociological, psychological, and biological phases of it; the aim being that of making the maximum contribution to the optimum development of the individual's potentialities in all phases of life including his finest possible capacity for adjustment to the world in which he lives, by placing him in an environment as favorable as possible to the promotion of such big muscles and other responses or activities as will best contribute to this purpose; the objectives being made according to physiological and anatomical needs of the individual and also the psychological and social-moral needs; conditions to consider in making out a program of activities; the new concept on competitive sports and athletics (intramural and interscholastic activities); the responsibility of physical education in regard to leisure time; suggested methods of teaching physical education; and qualifications and training of the physical education teachers, the supervisor, and the coach.

In my opinion this is indeed a well-constructed and well-written book and should be included in the library of

every individual engaged in any phase of the broad field of physical education.

CARL P. SCHOTT
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DIE SPORTÄRTZLICHE UNTERSUCHUNG, (Diagnostic Procedure of the Sport Physician), A. Arnold, M.D., private lecturer and physician for sports at University of Leipzig. (Leipzig: Johann Ambrosius Barth).

The contents of this small brochure (it is four and one-quarter by six and one-half inches and has eighty pages of small print, closely spaced) grew out of courses for sport physicians (doctors especially trained to advise the youth and men and women in selection of sports and who understand the relation of sports to physical well being).

It contains guiding principles of practice for the physical diagnosis of conditions found in persons who wish to follow some sport and conditions produced by participation in sports of various kinds.

Questions pertaining to the examination and growing out of it are treated briefly but pertinently. The medical examination differs from the usual one (history, examination, conference) only in respect to questions related to athletic participation. The diagnosis consists of interpreting the findings in relation to the effects of participation in athletics. Information as to what sports may be participated in to advantage or disadvantage and which to avoid grow out of the examination. Symptoms to look for, normal and abnormal findings, suggestions on conditioning, who may and who may not participate in sports, interpretation of complaints of athletes, and sports in relation to their effect on the various organs of the body are some of the topics discussed. It is thought essential that the sport physician himself be an athlete so that he will know the effects of participation and base his opinions on experiences.

The author also treats the following topics in his thorough fashion: the ideal body structure; the desirability of all-round ability; characteristics of different sport types, of the shot putter, sprinter, etc.; hygienic suggestions; bodily activities for women and for different age levels, for youths and adults. When advising youths, "Not only the constitution and the mental attitude must be considered but also the youths' inclination for a special sport."

The thoughts expressed on training and conditioning offer nothing new to our college physicians who advise athletes. In fact we are probably equally well informed and, in addition, possess better equipment for therapeutic purposes than that mentioned in the book.

The book will be helpful, however, to school and college doctors, because of the new and valuable information it contains in regard to the value of activities in general; also for teachers of physical education, coaches, and trainers.

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